federal register

Friday
December 20, 1991

Part II

Department of Transportation

Research and Special Programs Administration

49 CFR Part 106, et al.

Performance-Oriented Packaging Standards; Revisions and Response to Petitions for Reconsideration; Final Rule

DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

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

[Docket Nos. HM-181, HM-181A, HM-181B, HM-181C, HM-181D, HM-142A, HM-189, and HM-204; Amdt Nos. 106-8, 107-23, 171-111, 172-123, 173-224, 174-68, 175-47, 176-30, 177-78, 178-97, 179-45, and 180-3]

RIN 2137-AA01, 2137-AB87, 2137-AB88, 2137-AA10, 2137-AB56, and 2137-AB90

Performance-Oriented Packaging Standards; Revisions and Response to Petitions for Reconsideration

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

ACTION: Final rule; revisions and response to petitions for reconsideration.

SUMMARY: This amendment makes revisions to a final rule published in the Federal Register under Dockets HM-181, HM-181A, HM-181B, HM-181C, HM-181D and HM-204 (55 FR 52402, December 21, 1990). That final rule comprehensively revised the Hazardous Materials Regulations (HMR; 49 CFR parts 171-180) with respect to hazard communication, classification and packaging requirements. The changes were based on the United Nations Recommendations on the Transport of Dangerous Goods (UN Recommendations) and RSPA's own initiative. This amendment also addresses a petition for reconsideration to Docket HM-142A, which was incorporated into Docket HM-181 under a final rule issued September 18, 1991 (56 FR 47158).

The intended effect of the final rules published under Docket Nos. HM-181, HM-181A, HM-181B, HM-181C, HM-181D, HM-142A, and HM-204 is to: (1) Simplify and reduce the volume of the HMR; (2) enhance safety through better classification and packaging; (3) promote flexibility and technological innovation in packaging; (4) reduce the need for exemptions from the HMR; and (5) facilitate international commerce. The revisions contained in this document are primarily in response to petitions for reconsideration received to the final rule. This final rule also makes editorial and technical corrections to the December 21, 1990 final rule, to the January 3, 1991 final rule under HM-142A, and to the 1990 49 CFR parts 106-180.

DATES: *Effective:* October 1, 1991. Because the amendments adopted herein clarify and correct certain provisions of the final rule and impose no new regulatory burden on any person, notice and public procedure are unnecessary and these amendments may be made effective without the customary 30 day delay following publication.

Applicability: The incorporation by reference of certain publications listed in these amendments is approved by the Director of the Federal Register as of October 1, 1991. Because of the transition period provisions in 49 CFR 171.14, the provisions of § 172.101(l)(1)(ii), which allow up to one year after a change in the Hazardous Materials Table (HMT) to use up stocks of preprinted shipping papers and to ship packages that were marked prior to the change, do not apply to these amendments.

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SUPPLEMENTARY INFORMATION:

Background

On December 21, 1990 (55 FR 52402), the Research and Special Programs Administration (RSPA) published a final rule under Docket HM-181 which comprehensively revised the HMR (49 CFR parts 171 to 180) with respect to hazard communication, classification, and packaging requirements based on the UN Recommendations. Because of the complexity of the final rule, RSPA extended to 90 days the period for receiving petitions for reconsideration to allow persons affected by the final rule sufficient time to submit petitions. Revised transition period requirements in § 171.14 were published in a separate rulemaking issued on September 18, 1991 (56 FR 47158) to give persons subject to the HMR more time to comply with the revised final rule.

This corrections document incorporates editorial and substantive revisions to the final rule based on careful review of over 250 petitions for reconsideration received by RSPA. It also includes a number of amendments that RSPA has determined are necessary to correct or clarify the final rule. Because the amendments adopted herein clarify and correct certain provisions of the final rule, relieve certain restrictions in those regulations, and impose no new regulatory burden on any person, notice and public procedure are unnecessary and these amendments may be made effective without the customary 30 day delay following publication.

Petitions Received

Numerous petitions recommended revisions to: (1) The transition period in § 171.14 for converting to the new system (these petitions were addressed in the September 18, 1991 revised final rule); (2) the package reuse provisions in § 173.28; (3) non-bulk packaging of liquids poisonous by inhalation in §§ 173.226 and 173.227; (4) generic non-bulk packaging in §§ 173.201-204 and §§ 173.211-213; (5) bulk generic packaging in §§ 173.240-245; (6) segregation of materials by highway carriers in § 177.848; (7) manufacturer package certification and notification requirements in § 178.2; (8) package certification marking requirements in § 178.503; (9) general testing requirements in § 178.601; and (10) alternatives to the leakproofness test in Appendix B to Part 178. The following are RSPA's decisions on those issues that were of most interest to petitioners. A thorough discussion of these issues and all other topics addressed by petitioners can be found in the section-by-section review of this preamble.

Petitions Granted

1. The leakproofness test before reuse required in § 173.28 is adjusted to allow lower test pressures for packagings containing Packing Group II and III materials. To facilitate compliance with this section, RSPA also is requiring new drums intended for reuse to bear permanent thickness marks expressed in millimeters. Requirements for permanent package certification markings appear in § 178.503.

2. Clearer definitions for gases and liquids poisonous by inhalation are added to §§ 171.8, 173.115 and 173.132, for regulatory consistency and to provide better criteria for identifying these materials which are subject to the more stringent hazard communications and packaging requirements in the final rule.

3. Bulk packaging authorizations for materials poisonous by inhalation are restructured for clarity and regulatory consistency.

4. Use of DOT 57 portable tanks is authorized for most Class 3 (flammable liquids) and Class 8 (corrosive) materials. However, prohibitions on the use of this packaging will remain in effect for materials poisonous by inhalation, certain multiple hazard materials and Packing Group I materials.

5. The 25 gram limitation on Division 1.4 materials is eliminated in § 173.50.

6. Selective package testing variations in § 178.601 are broadened to permit, without further design qualification testing, design changes to the exterior dimensions and closure devices of single and composite packagings. Changes are also permitted in the dimensions of outer packagings of combination packagings.

7. Drum leakproofness qualification and production test procedures are expanded to include the alternatives listed in Appendix B to Part 178. The so-called "T-zone" test (solution over part of the seams) is permitted as a production test.

8. Requirements pertaining to infectious substances are revised to specify more appropriate requirements for medical wastes.

Petitions Denied

1. RSPA is denying petitions to change defining criteria for Class 3 liquids and to remove the combustible class definition in § 173.120 and the combustible liquid reclassification option in §§ 173.120 and 173.150.

2. Petitions to relax hazard communications and packaging requirements for materials poisonous by inhalation are denied.

3. Petitions asking RSPA to allow certain materials now assigned packagings required to meet Packing Group III performance level tests, to continue being shipped in non-specification packagings, are denied.

4. RSPA is retaining the basic shipper requirements for assuring package integrity prior to being offered for transportation, including the vibration test standard as a capability specified for all packagings in § 173.24a(a)(5) and the "no identifiable release (without the use of instruments)" criterion in § 173.24(b)(1).

5. The "EX" marking requirements in § 172.320 for Class 1 materials are retained, but additional alternatives are provided.

Several petitioners addressed issues raised in the preamble to Docket HM-181 that are not a part of this rulemaking. The Hazardous Materials Advisory Council (HMAC) suggested improvements pertaining to public input into international regulatory procedures such as more extensive outreach through RSPA's Hazardous Materials Information Exchange (HMIX) service to persons having access to personal computers with modems. This effort is already underway. RSPA's computer bulletin board already contains substantial information about planned meetings on international issues, digests of all UN papers, corrections to the final rule, and other information. HMIX can be accessed by calling 1-800-PLANFOR (in Illinois, call 1-800-367-9592).

One petitioner asked RSPA to clarify when a Competent Authority Approval Certificate is necessary. The petitioner asked if a certificate is required when the HMR already authorizes something for which an international regulation requires Competent Authority approval. For example, under the International Maritime Organization (IMO) International Maritime Dangerous Goods (IMDG) Code, the use of open head drums for Packing Group II and III flammable liquids is only allowed when authorized by the Competent Authority. In these situations, the provisions in the HMR constitute the authorization of the Competent Authority and no further documentation is required.

Except as adopted herein, all petitions for reconsideration received by RSPA regarding issues addressed by the final rule published on December 21, 1990, or the final rule published on January 3, 1991 (Docket HM-142A) are hereby denied. Any subsequent submission regarding issues relating to this rulemaking must be filed as petitions for rulemaking in conformance with 49 CFR 106.31. RSPA anticipates one or more additional notices to address deficiencies in the new requirements, as they are identified. Rulemaking action is also forthcoming concerning intermediate bulk containers (IBCs).

Docket HM-189

This amendment also makes revisions to the 1990 49 CFR parts 107-179. In the past, these amendments have been published in an annual final rule under Docket HM-189 to correct editorial errors and make minor regulatory changes to the HMR. However, because of major revisions to the HMR which occurred in the December 21, 1990 final rule under Docket HM-181, RSPA has decided to incorporate the HM-189 revisions into this final rule.

Section-by-Section Review

This section-by-section review addresses only significant changes. Examples of non-significant changes which are not specifically discussed in the review include: grammatical and typographical errors; changes in reference citations; paragraph redesignations; and minor revisions to enhance clarity and consistency.

Part 107: Hazardous Materials Program Procedures

Section 107.215. This section outlines procedures for filing an application for a waiver of preemption, and paragraphs (b)(6) through (b)(8) are revised to include "Indian tribe" as well as State and political subdivisions for consistency with the final rule published February 28, 1991 under Docket HM-207.

Subpart G, OMB Control Numbers Under the Paperwork Reduction Act, is removed. The provisions of §§ 107.601 and 107.603 are consolidated and now appear as § 171.8. Section 171.6, which sets forth units of measure, is moved to § 171.10. The provisions in § 171.10, which addressed hazardous materials in bulk on board vessels or barges, are removed as they are duplicated in Part 176.

Part 171: General Information, Regulations and Definitions

Section 171.4. This section is removed and reserved.

Section 171.5. This section is removed and reserved.

Section 171.6. This section, which addressed units of measure, is moved to § 171.10. Former subpart G of part 107, which sets forth OMB control numbers, is added in its place.

Section 171.7. Editorial corrections.

Section 171.8. RSPA is adding new definitions for "Hazard zone," "Material poisonous by inhalation," and "State."

The following definitions are revised: "Bulk packaging," "Cryogenic liquid," "Infectious substance (etiologic agent)," "Inner receptacle," "Irritating material," "Maximum net mass,", "Non-bulk packaging," "Packaging,", "Person,", "Technical name," and "United States."

RSPA is removing the following definitions: "Etiologic or infectious substances," "IM Tank Table," "Magnetic materials," "Manufacturer," "Net weight, net mass or net quantity," and "Oxidizer or oxidizing material."

RSPA is adding the definitions for "Hazard zone" and "Material poisonous by inhalation" in the appropriate sequence in § 171.8. Hazard zones determine how materials posing an inhalation-hazard in transportation are described, marked on packages, labeled, placarded and packaged. Materials poisonous by inhalation are defined as a gas meeting the defining criteria in § 173.115(c) and assigned Hazard Zones A, B, C or D in accordance with § 173.116(a), and a liquid meeting the defining criteria in § 173.132(a)(1)(iii) and assigned to Hazard Zone A or B in accordance with § 173.133(a); or any material identified as an inhalation hazard by a special provision in Column 7 of the § 172.101 Table.

Two petitioners recommended that RSPA define "capacity" or "rated capacity" and "total capacity" in § 171.8. For consistency with the UN,

Recommendations and throughout Docket HM–181, RSPA is using the terms "maximum net mass" and "maximum capacity." Therefore, the recommended definitions are not needed. The definition for "maximum net mass" in § 171.8 is revised. "Maximum capacity" is sufficiently descriptive to not warrant a definition.

Another petitioner suggested that the definition for "maximum net mass" and the definition for "net weight, net mass or net quantity" are duplicative, indicating that "net mass" and "maximum net mass" are the same. RSPA agrees. Therefore, for clarification, the definition "Net weight, Net mass, or Net quantity" is removed.

Several petitioners recommended that the definition of "packaging" be revised. One petitioner stated that the first sentence should read: "Packaging means a receptacle which may require an outer packaging * * *." The petitioner stated that the "definition as written does not account for the fact that large articles without their means of initiation, or with their means of initiation containing at least two effective protective features, may be carried unpackaged as authorized by item number 49 in the UN Table of Particular Packaging Requirements or Exceptions. Another petitioner stated that "packaging" as defined in § 171.8 is limited to composite or combination packagings and should be revised to refer to all types of packagings, such as cargo tanks and portable tanks. RSPA disagrees, believing there is no need to expand the generic definition of "packaging" to account for the specific functions of "outer packaging." However, consistent with UN Recommendations, RSPA is revising the term "packaging" to mean any components or materials necessary for a "receptacle" to perform its containment function and thus is removing the phrase "which require an outer packaging." The definition as revised is equally applicable to bulk and non-bulk packagings.

The definition of "technical name" is revised to include (under certain conditions) authorized generic microbiological descriptions for use as technical names for "infectious substances" (etiologic agents) shipped to laboratories for testing and analyses, provided they readily identify the general microbiological group.

A definition of "State" is added and the definitions of "person" and "United States" are revised for consistency with § 107.3, as revised in a final rule published under Docket HM–207 on February 28, 1991 (56 FR 6616).

Responsibility associated with the functions of certifying that a packaging complies with subparts L and M of part 178 has been restated and more fully established in § 178.2. In that section, "the person" is the legal entity recognized as responsible for package certification, and the reference to "manufacturer" has been removed. Therefore, RSPA is removing the definition of "manufacturer" in § 171.8. Petitions requesting a new definition of "manufacturer" are discussed in the § 178.2 section review.

Section 171.10. The provisions addressing hazardous materials in bulk on board vessels or barges are removed, as these requirements are contained in § 176.5(d). The requirements addressing units of measure, formerly found in § 171.6, are moved to this section. Numerous petitioners were concerned that RSPA was requiring use of metric units of measurements to indicate total quantities on shipping papers. RSPA adopted metric (or SI units) as the regulatory standard to harmonize with international requirements and in conjunction with DOT's policy to implement the metric system. In the final rule, metric units are indicated for such standards as required construction material thicknesses, size of package markings, label and placard specifications, and package capacities. There is no requirement in § 172.202 that the total quantity of a material be indicated in metric units on shipping papers.

RSPA agrees with recommendations from several petitioners to revise paragraph (c)(2) by adding the following conversion factors for pressure in the Table of Conversion Factors For SI Units: "1 Bar=100 kPa=14.5 psi" and "1 kPa=7.5 mm HG." RSPA is further revising the table by removing references to exponential values indicated by the letter "E" in columns two and three. Suggestions from two petitioners to add a measurement equivalence table identical to that in the International Civil Aviation Organization (ICAO) Technical Instructions because "there are circumstances where an 'exact' conversion of SI units is needed" are not accepted, in the interest of timeliness. Adjustments to the Table of Conversion Factors may be addressed in future rulemaking actions.

Section 171.11. RSPA is revising this section to clarify requirements pertaining to import/export air shipments of materials poisonous by inhalation. References to Division 2.3 and Division 6.1, Packing Group I, materials in paragraph (c) are removed. Paragraph (d)(9) is revised to remove the reference to § 173.3a and require all materials poisonous by inhalation, as defined in § 171.8, to be described, marked and packaged in accordance with the provisions of the final rule. The effect of these changes is to permit materials poisonous by inhalation to be transported under provisions of the ICAO Technical Instructions, subject to certain restrictions. Paragraph (d)(12) is added to clarify that ammonium nitrate fertilizer and ammonium nitrate mixed fertilizer may be transported only if they do not meet the definition for Class 1 (explosive) material.

Section 171.12. Paragraph (b) is reorganized for ease of reference and clarity. One petitioner objected to the changes to this section stating that import shipments stored temporarily in warehouses and then shipped to a final U.S. destination are not addressed by the final rule and that in failing to address incidental storage, shipments which are incidentally stored would have to be brought into full compliance with all of the relevant requirements in the HMR. The petitioner noted that this may present a conflict with the Trade Agreements Act of 1979. RSPA disagrees. The revised provisions of § 171.12(b) still permit shipments from warehouses in the U.S. to the end user in the U.S., under IMDG Code provisions, as long as the initial leg of the shipment, such as from a foreign port to the U.S. warehouse, conformed to IMDG Code provisions.

HMAC recommended that § 171.12(b) specify that shipments made in accordance with the IMDG Code be "certified" in accordance with the Code. This would be consistent with the similar requirement authorizing shipment in accordance with the ICAO Technical Instructions (see § 171.11(a)). RSPA agrees and has revised § 171.12(b) to indicate that a shipment must also be certified in accordance with the IMDG Code.

RSPA is granting HMAC's petition to clarify that IMDG Code descriptions and markings are permitted for materials subject to the IMDG Code, but not subject to DOT requirements, by adding the following sentence to paragraph (b)(3) (herein redesignated as (b)(2)): "However, these materials may be transported in the United States described, marked and labelled in accordance with the IMDG Code."

A petition recommending a revision to paragraph (b)(2), (redesignated as (b)(5)), excepting intermediate bulk containers (IBCs) authorized by the UN from bulk packaging requirements in Docket HM–181, is denied. Until RSPA acts to include IBCs in the HMR, these packagings will continue to be required to conform to existing regulatory

provisions in the HMR. It was pointed out that the text in § 171.12(b)(2) could mistakenly be taken to mean that shippers were being excluded from compliance with all requirements of the IMDG Code applying to bulk shipments. RSPA disagrees. Only the packaging requirements of the HMR are applicable. Hazard communication, stowage, and other requirements may conform to IMDG Code provisions, subject to other § 171.12 restrictions.

A new paragraph (b)(6) is added clarifying that export shipments must conform to the general packaging requirements in §§ 173.24, 173.24a, and 173.28, in addition to any applicable specification requirements, for U.S.-manufactured packagings. Unless packages are emptied and refilled for export, imported foreign-manufactured packagings are not subject to these requirements.

Paragraph (b)(4)(iii) (redesignated as (b)(8)) is revised to permit materials poisonous by inhalation to be transported under IMDG Code provisions, subject to restrictions on packaging and hazard communication.

One petitioner noted that paragraph (b)(4)(iv) (redesignated as (b)(9)), prohibiting Class 7 materials from being shipped under the IMDG Code, is inconsistent with paragraph (d) authorizing use of International Atomic Energy Agency (IAEA) requirements. RSPA is revising paragraph (b)(9) to clarify that Class 7 materials may be shipped under the IAEA provisions of paragraph (d).

In response to a HMAC petition, RSPA is adding a requirement in new paragraph (b)(13), consistent with requirements in § 172.203(j), that the words "Dangerous When Wet" appear on shipping papers for Division 4.3 materials. RSPA is adding a new paragraph (b)(15) to clarify that cylinders not manufactured to DOT specifications must conform to the requirements of §§ 173.301(i) and 173.301(j).

Two petitioners pointed out that paragraph (b) does not include emergency response information requirements in Subpart C of Part 172 but that paragraph (c) does. This oversight is corrected in new paragraph (b)(16). In addition, RSPA is revising paragraph (c) to clarify that the emergency telephone number requirement in § 172.201(d) does not apply to shipments made under the IMDG Code if hazardous materials are not offloaded from a vessel or are offloaded between vessels at a port facility without being transported over a public highway. Several petitioners noted regulatory inconsistencies involving permitted "port area" transport of bulk shipments only under the IMDG Code in § 171.12(b) and (c) and exceptions to vessel requirements in § 176.11. They said § 171.12(c) "seems to allow" transportation of both bulk and non-bulk packagings in compliance with the IMDG Code "in port areas." However, the petitioners added, § 171.12(c) also references part 176 which in § 176.11 allows shipments in compliance with the IMDG Code subject to the limits in § 171.12(b). The petitioners stated that "This effectively prohibits the shipment or receipt, or movement, through a port area of any bulk container which complies only with IMDG." RSPA agrees and is modifying the reference to part 176 in § 171.12(c) so that only "the applicable operational requirements in part 176 that are not addressed in the IMDG Code" apply. The exception indicating when compliance with § 172.201(c) is not required is included in § 171.12(c) and is deleted from § 176.11(a). The reference to § 176.11 is deleted.

Section 171.12a. Several petitioners viewed the provisions in this section as a significant reduction in the acceptance of hazardous materials shipped in accordance with Canadian regulations. One petitioner remarked that, "unlike the current wording of paragraph (d), the final rule does not permit the use of Canadian packagings for the shipment or reshipment of hazardous materials within the US." For example, paragraph (a) as revised in the final rule would prohibit the reshipment of monoethanolamine in a Canadian Transport Commission (CTC)–17E drum from a U.S. warehouse to a U.S. customer because the CTC specifications are not contained in the Canadian Transport of Dangerous Goods (TDG) Regulations. It was also pointed out that standards for portable tanks and tank cars are also presently not contained in the TDG Regulations. The petitioner also asserted that paragraph (b)(13), authorizing only UN certified packagings when required, further restricts use of Canadian packaging.

It should be noted that provisions in § 171.12a are also subject to the transition period requirements in § 171.14. Therefore, Canadian non-bulk packagings which were authorized for use in the United States under § 171.12a as effective prior to October 1, 1991, would still be authorized until October 1, 1996. It is anticipated that, prior to the effective dates of the various provisions for packagings, Canada will have incorporated CTC packaging, portable tank and tank car specifications into the TDG Regulations. RSPA specifically drafted § 171.12a(b)(13) in the manner it appears in the final rule because it appears that Canada may authorize certain non-bulk specification packagings indefinitely, even though those packagings have been replaced with UN performance standards in the U.S. Accepting these packagings indefinitely would be contrary to RSPA's efforts to convert to performance-based requirements for non-bulk packagings. Accordingly, paragraph (b)(13) is revised to clarify that when specification packaging is required by the HMR, TDG-authorized packagings can be used in the U.S. only if they correspond to DOT specifications or UN standards. In addition, paragraph (b)(13) is revised to clarify that cylinders not manufactured to DOT specifications must conform to the requirements of § 173.301(i) and (j).

The Association of American Railroads (AAR) objected to paragraph (b)(4) addressing U.S. requirements for Class 1 explosives. Prior to Docket HM–181, AAR said, "markings of packages containing Class 1 materials in accordance with TDG regulations were acceptable in the U.S. There is no reason to depart from this practice, in effect, requiring Canadian shippers and carriers to incur the cost of placing EX numbers on packages containing new explosives at the U.S./Canadian border." AAR also contended that Subpart C only required approval of "new" explosives and therefore only new Canadian explosives being imported into the United States required approval. RSPA has substantially revised § 172.320 [marking requirements for explosive materials] in response to this and other comments. The complete discussion of these comments is made in association with § 172.320. These changes significantly reduce the impact of § 171.12a(b)(4). RSPA does not agree with AAR contention that approval of only "new" Canadian explosives imported into the United States are subject to the approval process in Subpart C. All Canadian explosives imported into the United States have been, and continue to be, subject to these requirements.

AAR also opposed requirements in paragraph (b)(5) that shipments from Canada of Division 2.3, 2.4 and 6.1 PG I materials must be described and packaged in accordance with Docket HM–181 requirements. RSPA is revising paragraph (b)(5) to permit materials poisonous by inhalation, as defined in § 171.8, to be transported under provisions of the TDG Regulations, subject to HMR packaging requirements and certain hazard communication

requirements. In some instances, dual marking, labeling and placarding may be necessary to satisfy both sets of regulations. This will facilitate the transborder shipments, while ensuring an acceptable level of safety in transporting these extremely hazardous materials.

Section 171.14. This section was revised in a September 18, 1991 final rule, and further amended in an October 1, 1991 final rule. The section is republished in this amendment for readers' convenience.

Part 172: Hazardous Materials Table, Special Provisions, Hazardous Materials Communications Requirements and Emergency Response Information Requirements

1. Hazardous Materials Table and Special Provisions

Section 172.101: The Hazardous Materials Table (The Table). Numerous petitioners suggested changes to the Table, both substantive and editorial. Those petitions of substantive concern are discussed below. Those petitions that correctly pointed out editorial errors and errors of omission are not discussed below but the regulatory text has been corrected as requested.

Several petitioners requested that "Lead sulfide" be deleted from the Table. The petitioners pointed out that lead sulfide is only regulated as a hazardous substance and should be shipped under the shipping name "Environmentally hazardous substance" or "other regulated material." RSPA concurs with these petitioners and has revised the Table accordingly.

A petitioner requested that a special provision similar to Special Provision A2 in ICAO, be added to the HMR and be placed in the entry for UN0059. Special Provision A2 in ICAO is a method by which products that are otherwise forbidden for transportation by aircraft may be transported by aircraft when approved by the competent authority of the country of origin. RSPA is denying this petition as outside the scope of this rulemaking. An approval provision, as envisioned by the petitioner, to replace existing provisions for applying for exemptions was not proposed nor adopted in the final rule.

One petitioner requested that "propellent, explosive solid, NA024" be allowed to be transported via air freight. RSPA agrees that this material is suitable for transport aboard cargo only aircraft and is revising Column 9B of the Table entry for NA0274 to read "5 kg".

Several petitioners requested that materials listed as a specific proper shipping name in the Table under Class 3, be allowed to be continued to be transported under that specific name when the flash point of the material is in the combustible liquid range. Petitioners pointed out that RSPA allows this for products that are reclassified as a combustible liquid in accordance with § 173.50(f). RSPA concurs with these petitioners and has amended § 172.101(d)(4) to allow materials that meet the definition of combustible liquid to be shipped under the specific proper shipping name that is specified for the Class 3 material.

Several petitioners requested that the entry "Ammonium nitrate, Division 1.1D, UN0222," be removed from the Table. Petitioners stated that this entry could lead to confusion in their industry. RSPA disagrees and denies these petitions. This entry has appeared in the § 172.102 Table for numerous years without causing any confusion. In the final rule, based on comments to the NPRM under docket HM-181, UN0233 was removed from the Table because it was RSPA's opinion that no fertilizer should meet the definition of Class 1. The entry under UN0222 does not include fertilizers and, therefore, should be listed in the Table.

Several petitioners requested that the classification of a particular product be revised, that an additional packing group be added, or that a subsidiary label be added or deleted. Except for materials poisonous by inhalation, the classification of products under Docket HM-181 is in accordance with Revision 6 of the UN Recommendations. Persons taking issue with any of these classifications may petition RSPA to revise the UN classification. This petition should include a UN data sheet as shown in Chapter 1, figure 1.1 of the UN Recommendations and any other information which would justify a change in classification.

Several petitioners requested that Special Provision B1 be added to all Class 3, Packing Group III materials. B1 reads, "[i]f the material has a flash point at or above 38 °C (100 °F) and below 93 °C (200 °F), then the bulk packaging requirements of § 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 °C (100 °F), then the bulk packaging requirements of § 173.242 of this subchapter are applicable." RSPA agrees that this special provision should be applied to every Class 3, Packing Group III material, and has revised the Table accordingly.

A petitioner requested that Special Provision B32 be applied to "Hydrocyanic acid, aqueous solutions not more than 20% hydrocyanic acid, UN1613". The petitioner pointed out that this material is a Hazard Zone B poisonous by inhalation hazard material and that all Hazard Zone B materials had B32. Special Provision B32 has not been applied to this entry because RSPA did not want to authorize this material in cargo tanks or portable tanks. However, the final rule authorized any packaging specified in § 173.244, which includes cargo tanks and portable tanks. Therefore, RSPA is denying the petitioner's request to add Special Provision B32 to UN1613 and is instead adding a new Special Provision B82 which states that cargo tanks and portable tanks are not authorized for the material.

Several petitioners requested that the bulk packaging sections for "Corrosive liquid, n.o.s.—Packing Groups I and III—be revised to read §§ 173.243 and 173.241; respectively, instead of §§ 173.242 and 173.240. RSPA agrees and these entries are revised in the Table accordingly.

Under the final rule, RSPA published seven entries for ammonium nitrate fertilizer (ANF). One of these entries, NA1942, stated that the material must meet the definition in The Fertilizer Institute (TFI) "Definition and Test Procedures for Ammonium Nitrate Fertilizer." The TFI publication was a method to assure that no ANF that meets the definition of a Class 1 material is shipped under one of the ANF shipping descriptions. It was RSPA's intention that an ANF that meets the definition of a Class 1 material should not be shipped under one of the ANF shipping descriptions. However, persons offering an ANF for transportation would be able to bypass this requirement by offering the materials under one of the other ANF shipping descriptions. In addition, RSPA believes that five of the ANF shipping descriptions in the UN Recommendations are confusing and very difficult to use. Therefore, RSPA is removing six of these entries—the Class 9 entry is being retained—and is adding two generic ANF entries. In addition, both of these entries will have a special provision that states that the material must not meet the definition of a Class 1 material. Also, RSPA is revising §§ 171.11, 171.12, and 171.12a to state that an ANF must not meet the definition of a Class 1 material.

Several petitions were received related to the authorizations of IM portable tanks. Petitions were received that requested different IM tanks or the inclusion of an IM Tank as an authorized packaging. The IM tank authorizations in the final rule were based on the UN Recommendations. The IM tank authorizations of the IMDG

Code were not considered in the final rule. Therefore, if the UN Recommendations specified a different tank than the IMDG Code, the tank authorized was based on the UN Recommendations, not the IMDG Code.

In addition, for materials poisonous by inhalation, RSPA specified higher integrity tanks than authorized by the UN Recommendations or the IMDG Code. In general, the IM tank authorized for a material poisonous by inhalation is an insulated IM 101 tank with no bottom outlets, a test pressure of 9 bars and with a minimum thickness of either 6.35 mm or 7.62 mm. Considering the hazards posed by materials poisonous by inhalation in transportation, RSPA believes that these are the minimal standards that should be applied to IM portable tanks that transport them.

Based on extensive petitions, RSPA is making numerous changes to the IM tanks that are authorized for hazardous materials that are not poisonous by inhalation. In addition, RSPA is modifying §§ 173.240 and 173.241 to clarify that the IM tanks that are authorized in those sections may be limited by the special provision column of the Table.

RSPA is clarifying that materials that are transported in IM portable tanks in a molten state, must be transported in insulated tanks. This is done by removing the requirement from specific entries in the Table (e.g., T38) and moving the requirement to § 173.32c. Therefore, the requirement applies to all materials transported in IM portable tanks in a molten state.

IM Tank Interim Approvals: Through this **Federal Register** publication, RSPA is revoking the IM portable tank authorizations of the IM tank table and the interim approvals that were issued by RSPA for IM portable tank authorizations. This revocation is effective October 1, 1993, for materials poisonous by inhalation and October 1, 1996, for all other hazardous materials. This revocation of the IM tank authorizations is being done because IM portable tanks are now authorized through the Table and certain specific bulk packaging sections.

One petitioner requested that the alternative proper shipping name "Toluenediamine" be added as an alternative to the proper shipping name "2,4-Toluylenediamine." The petitioner pointed out that this is how the shipping name previously appeared in the Table and that it appears in the List of Hazardous Substances in the appendix to § 172.101. RSPA believes that the alternative spelling of the name "toluenediamine" should be allowed and has revised the table to allow this alternative spelling. RSPA further believes that, when appropriate, use of either the proper shipping name "2,4-toluenediamine" or "2,4-toluylenediamine" would identify the name of the hazardous substance "toluenediamine" and such a proper shipping name would not be subject to the requirements of § 172.203(c)(1).

RSPA received numerous petitions for reconsideration regarding intermediate bulk containers (IBCs), specifically DOT Specification 57 portable tanks. Under Docket HM-181, RSPA did not implement provisions for the IBCs discussed in the UN Recommendations (chapter 16) and the 25th Amendment of the IMDG Code (chapter 26). RSPA will address design requirements, including testing and commodity authorizations, for all types of IBCs currently addressed by the UN and the IMO in a future rulemaking action. However, due to an oversight by RSPA, the commodity authorizations in Docket HM-181 for DOT Specification 57 portable tanks were more restrictive than intended, and this error is corrected.

Under Docket HM-181, it was RSPA's intention to generally allow the use of DOT Specification 57 portable tanks for those Class 3 (flammable liquids) and Class 8 (corrosive materials) commodities that are currently authorized in the HMR and that are (1) not in Packing Group I; (2) not poisonous by inhalation; and (3) do not meet another hazard class except Class 9, combustible liquid or Class 3—Packing Group III. However, a number of commodities meeting these conditions were assigned Special Provision B2 or B4 which forbids the use of DOT Specification 57 portable tanks. In this correction document, RSPA is amending B2 and B4 to remove the prohibition from using DOT Specification 57 portable tanks. For Packing Group I or dual hazard materials, RSPA has added Special Provision B3 or B10, which continue the prohibition of using certain cargo tanks, tank cars and DOT Specification 57 portable tanks.

Several petitioners requested that the numerical designations of commonly used refrigerants be allowed as part of the proper shipping name, as currently allowed under the HMR. The petitioners pointed out that RSPA recognized the acceptability of these codes under Docket HM-166H when it adopted the numerical designations. RSPA agrees and the numerical designations are added in italics to the appropriate entries in the Table, which means that they are allowed but not required to be part of the proper shipping name.

Several petitions were received regarding the classification of certain materials poisonous by inhalation. A few of these petitions did not provide any data. In the absence of new data, RSPA continues to rely on the data it has which shows these materials to be poisonous by inhalation. Other petitioners provided sufficient data to show that "Dimethyl thiophosphoryl chloride," "Nitrogen trifluoride," "Isophorone diisocyanate," "Dichlorodifluoromethane and ethylene oxide mixtures with not more than 12% ethylene oxide," and "Sulfuric acid, containing less than 30% free sulfuric acid" are not materials poisonous by inhalation and RSPA is amending the Table accordingly.

One petitioner provided data that showed that "sulfuryl chloride" is a material poisonous by inhalation and RSPA is amending the Table accordingly. Several petitioners provided data that showed that some materials are not poisonous by inhalation at certain percentages. For those materials, RSPA is revising certain entries in the Table to indicate that if these materials are poisonous by inhalation then they shall be shipped under a generic poisonous by inhalation shipping description; otherwise, these materials are not required to be shipped as poisonous by inhalation. These materials include "Chloroformates n.o.s.," "Carbon dioxide and ethylene mixtures with greater than 6% ethylene oxide," "Diborane mixtures," and "Carbon monoxide and hydrogen mixtures." Although RSPA has changed these entries in the Table, any material which has a special provision in the Table indicating the material to be poisonous by inhalation, which is transported at a percentage where the material no longer meets the definition of poisonous by inhalation, is not subject to the communication requirements of the HMR applicable to poisonous by inhalation hazard materials.

Several petitioners requested that ethylene oxide be reclassified as a flammable gas in lieu of its poison gas classification promulgated under the final rule. Petitioners did not contest that the material is poisonous by inhalation, but rather argued that the classification of ethylene oxide as a poisonous gas would increase their costs exorbitantly. The petitioners argued that the cost of classifying the material as a poisonous gas would increase their costs two to three times because of the insurance, routing and separation requirements for poison gases. In addition, the petitioners were concerned with the public perception of materials labeled with POISON GAS

labels being shipped into food processing plants or hospitals. Petitioners requested this reclassification for ethylene oxide which is shipped in non-bulk packagings that bear an EPA-approved pesticide label.

RSPA believes that the hazards posed by ethylene oxide are too extreme to allow this product to be classified as a flammable gas instead of a poisonous gas. The fact that other agencies, (i.e., the Environmental Protection Agency, Food and Drug Administration and Occupational Health and Safety Administration) regulate this product because of its hazards to the public supports retention of the poisonous gas classification for this material. Although it is possible that the costs for shipping ethylene oxide will increase, RSPA does not believe that the increase will be nearly as severe as argued by the petitioners. The requirements discussed by petitioners are based on the old poison gas classification of POISON A, not the Docket HM-181 classification of 2.3—which includes a much larger group of materials.

The petitioners also argued that the requirement to separate ethylene oxide by four feet from other flammable liquids and gases will increase the cost to ship the material because the vehicle will have to be moved partially empty. Although ethylene oxide must be separated by four feet from flammable liquids and gases, the intervening space may contain non-hazardous materials or other compatible hazardous materials. RSPA believes that the inhalation hazard posed by ethylene oxide is more severe than its flammability hazard, even in non-bulk or combination packagings. Therefore, RSPA is denying these petitions and is retaining the poisonous gas classification for ethylene oxide.

Several petitioners requested that RSPA reconsider the bulk packaging requirements for bromine. While the petitioners acknowledge that bromine meets the criteria for a material that is poisonous by inhalation, they pointed out that bromine is a unique material that requires special handling. The petitioners also stated that the packagings adopted by RSPA for materials poisonous by inhalation are not appropriate for bromine. Additionally, the petitioners stated that certain requirements, such as outage limits, would conflict with international limits imposed by the International Maritime Organization, Dangerous Goods by Road (ADR), and Carriage of Dangerous Goods by Rail (RID). RSPA agrees with petitioners and is making several changes to the bulk packaging requirements for bromine. The following changes are made:

a. The bulk packaging reference in Column 8C of the § 172.101 Table is changed to § 173.249 from § 173.244.

b. The quantity of bromine that may be loaded into a cargo tank motor vehicle or intermodal portable tank is revised to be consistent with the current HMR, and with international regulations.

c. The special provisions in Column 7 of the § 172.101 Table are revised to remove the insulation requirements for cargo tank motor vehicles and portable tanks and authorize the continued use of packagings which have been used safely for many years. The petitioners pointed out that an insulation jacket on a bromine tank could easily obscure a minor leak and permit tank corrosion to progress undetected until an uncontrollable spill results. In bromine service, an insulation jacket would prohibit routine, continual visual examination of the exterior of a tank. RSPA believes that currently-used bulk packagings will provide the level of packaging integrity sought for PIH materials, without placing an unnecessary burden on the industry.

As requested by a petitioner, the term "n.o.s." is removed from the four aerosol proper shipping names. In addition, the packaging sections for these Table entries are amended to reference § 173.306, in order to allow aerosol containers.

RSPA is making substantial changes to the bulk packaging references in the Table for gases poisonous by inhalation. Many petitioners were confused over which section and/or special provision they were to use. Much of this confusion arose over Special Provision B13 which stated that additional provisions appeared in § 173.314 or § 173.315, in addition to the requirements in § 173.244 or § 173.245. These requirements were in addition to the requirements imposed under an appropriate "B30" and "B70" special provision for cargo tanks and tank cars, respectively. In order to clarify these requirements RSPA is changing the packaging section for these materials (except for former Poison A materials and materials not previously authorized in bulk packagings) to §§ 173.314 and 173.315, and is amending the packagings tables in these sections by adding generic entries for Division 2.3 (Hazard Zones A, B, C and D) materials. The requirements previously found in the appropriate B30 or B70 note are moved to notes in the tables in §§ 173.314 and 173.315. For those former Poison A materials and those materials not previously authorized in bulk, RSPA is referencing § 173.245 as the bulk packaging section and removing all "B notes". Therefore, bulk packagings are only authorized for these commodities under approval by the Associate Administrator for Hazardous Materials Safety.

Several petitioners requested that, for those materials that are required to have their proper shipping name marked on bulk packagings, that only the key words be required to be marked. Examples of the words that the petitioners requested be left out are "aqueous solutions" in the proper shipping name "Hydrogen peroxide, aqueous solutions" and "stabilized" in the proper shipping name "Acetone cyanohydrin, stabilized." RSPA agrees with these petitioners. RSPA is adding paragraph (f) to § 172.302, which does away with the need to remark bulk packagings, if the key words specified in the § 172.101 Table are identical to those marked on the bulk packaging.

RSPA received several petitions regarding the issue of half versus full headshields on tank car tanks. Under Docket HM-175A, RSPA and the Federal Railroad Administration are considering developing regulations to improve the transportation of hazardous materials in tank car tanks. One of the issues being considered is the feasibility of requiring full headshields on tank car tanks. Therefore, RSPA considers those petitions received to Docket HM-181 that requested that certain tanks cars be required to be fitted with full headshields to be outside the scope of this rulemaking. However, there is no prohibition in the HMR on using tank car tanks with full headshields, and it is encouraged.

RSPA received several petitions regarding the packaging requirements for alcoholic beverages. Petitioners pointed out that under the previous requirements, alcoholic beverages which were 140 proof or lower were not subject to the specification packaging requirements of the HMR, but that under Docket HM-181 these materials would be subject to the packaging requirements. The petitioners requested that this packaging exception be retained under this rulemaking. RSPA agrees and is retaining the packaging exception provided for alcoholic beverages.

Many petitioners objected to the insulation requirement for bulk packagings of corrosive materials that are poisonous by inhalation. The petitioners contended that uninsulated tanks with a corrosion allowance provide better or equivalent thermal protection than ¼ inch or ½ inch thick

insulated tanks. RSPA is denying these petitions because: (1) they were unsubstantiated by data; and (2) insulation of bulk packagings provides crush ("accident damage protection") as well as thermal protection. However, RSPA is revising special provisions B14 and T38—which require insulation of bulk packagings—in response to a petitioner who requested that: (1) the phrase "completely insulated" be clarified; and (2) the thermal conductance be lowered to 0.075 Btu per hour per square foot per degree fahrenheit differential so that the special provisions are consistent with the requirements for other bulk packagings.

Several petitioners also objected to the requirement for the insulation of bulk packagings for materials poisonous by inhalation that fall within Hazard Zone C. The petitioners argued that this requirement is not consistent with the UN Recommendations or the IMDG Code and is also inconsistent in that it is not required for liquids. The petitioners also argued that there was not sufficient justification of the costs and benefits associated with this requirement.

In Docket HM–181, RSPA determined that the group of materials that were to be considered to be poisonous by inhalation would be larger for gases than for liquids. Under the final rule, only those liquids that fall within Hazard Zones A and B are considered to be poisonous by inhalation while for gases this requirement includes Hazard Zones C and D. RSPA made this decision because of the volatility associated with gases in relation to liquids. Although the packaging requirements for materials poisonous by inhalation are inconsistent with those of the international community, RSPA believes that the hazards associated with these materials in transportation are not adequately addressed by the international regulations and, therefore, RSPA is imposing more stringent packaging requirements.

The petitioners also stated that there was no clear safety reason to require insulation of cargo tanks and portable tanks for materials poisonous by inhalation assigned Hazard Zone C and, in fact, insulation would make routine inspections more difficult and less likely to reveal potential difficulties (i.e., corrosion) that, if left undetected, could lead to transportation incidents. As stated before, the insulation requirement in question provides crush as well as thermal protection of these packagings. In cargo tanks and portable tanks the primary function of the insulation is to serve as a crush protector. Though the insulation could cover up external corrosion, the petitioners did not address the accident resistant characteristics of the insulation, nor did they provide a suitable alternative. Therefore, RSPA is denying those petitions to eliminate the insulation requirements for bulk packagings of Hazard Zone C materials poisonous by inhalation.

In response to petitions for reconsideration made to Docket HM–142A, which has been incorporated into Docket HM–181, RSPA is adding a new entry "Regulated medical waste, 6.2, NA 9275, II" to provide less rigorous requirements for infectious substances which are "regulated medical wastes" as defined in appendix G of part 173. See further discussion of this issue under § 173.134.

2. Subpart C; Shipping Papers

Section 172.202. RSPA agrees with petitions to remove the option in paragraph (a)(2) allowing IMO class and division numbers in parentheses following the numerical hazard class, because § 171.12(b) already allows IMDG descriptions for vessel shipments. Accordingly, the phrases "IMO class and divisions numbers" and "in parentheses" are removed from paragraph (a)(2). For display of the subsidiary hazard class, if any, the phrase "or following the basic description" is added.

One petitioner recommended that paragraph (a)(2) be amended to except materials described as "Combustible liquid, n.o.s." from the requirement to include the hazard class on shipping papers since the hazard class name is included in the proper shipping name. The petitioner stated that this is consistent with the current HMR and would present no safety or enforcement problems. RSPA agrees and is revising paragraph (a)(2) accordingly.

Several petitioners recommended amending the provisions in paragraphs (a)(3) and (a)(4), which require that the "UN or NA" identification number be entered before the packing group. The petitioners stated that the "Packing Group" is an important part of the basic description and, therefore, should follow the hazard class entry as prescribed under the IMDG Code. They stated that, if not amended, two separate entries will be required in their computer data bases, increasing the chance for error. In addition, the petitioners recommended that the letters "PG" for Packing Group be removed because they are not recognized by the ICAO or IMO regulations.

RSPA disagrees, in part, with the petitioners. They are mistaken in their belief that the IMDG Code or ICAO (see 4.1.2 of the ICAO Technical Instructions) requires entry of the "Packing Group" before the identification number. The IMDG Code states in paragraph 9.3.11 that, except for the correct technical name (proper shipping name), hazard class and UN number, which shall appear in that sequence, the location and order in which other elements of information appear on the shipping document are optional. The IMDG Code gives an example of the sequence of the basic elements of a description on shipping documentation as follows: "Formic acid, Class 8, UN1779." The sequence of elements on shipping documentation in § 172.202(a)(3) is consistent with this and remains unchanged. However, the requirement in § 172.202(a)(4) to include the letters "PG" preceding the packing group (e.g., PG I), is being made optional in response to petitions.

Several petitioners asked RSPA to retain current language in § 172.202(a)(4) requiring that, except for empty packagings and compressed gas cylinders, "the total quantity by weight (net or gross as appropriate)" be displayed on the shipping paper. They pointed out that this language may have been inadvertently omitted in Docket HM–181. The petitioners also recommended reinstatement of the examples that are presently shown in the current § 172.202(a)(4) for the total quantity. RSPA agrees that language in the current § 172.202(a)(4) was inadvertently omitted, and accordingly, paragraph (a)(5) is revised to include it. For consistency, the terms "mass" and "capacity" are substituted for "weight" and "volume", respectively. RSPA also is including examples of total quantity in both U.S. standard or customary units and the International System of Units (SI) to indicate that either usage is permitted. For bulk packagings and cylinders, RSPA is requiring some indication of total quantity; for example "10 cylinders" or "1 tank truck."

A petitioner stated that the example of the basic description for a hazardous material on a shipping paper, in § 172.202(b), shows commas between the required elements. However, the petitioner would prefer using a slash(s) "(e.g., *//*)" between elements of the description, and asked whether this is acceptable. The HMR do not stipulate what methods may be used to separate the elements of a basic description on a shipping paper. RSPA believes that any means of separating the elements of a shipping description is acceptable, such as by spaces, commas, slashes, asterisks, etc., as long as the elements are readily identified.

AAR recommended eliminating the option in paragraph (d) to permit entry of the technical name between the "proper shipping name and hazard class" or "after the basic description" on a shipping paper. The petitioner stated that the option to enter the technical name between the proper shipping name and hazard class would complicate efforts to improve hazardous materials descriptions. RSPA disagrees. In the current 49 CFR, RSPA permits an option for displaying the technical name of a hazardous material, as specified in §§ 172.202(d) and 172.203(k). In this final rule, RSPA maintains the option to display entry of the technical name either after the proper shipping name or following the basic description (revised § 172.202(d)).

RSPA is revising paragraph (d) to include the following additional description for Class 7 radioactive materials, " 'RADIOACTIVE MATERIAL' unless these words are contained in the proper shipping name."

HMAC recommended adding a new paragraph (f) to allow on shipping papers, abbreviations which appear as authorized descriptions in Column 2 of the § 172.101 table, or in the appendix to the table. Currently, in § 172.201(a)(3), which was unchanged in Docket HM-181, shipping descriptions may contain abbreviations that are specifically authorized or required in the Hazardous Materials Table in § 172.101 or subpart C of part 172. Therefore, RSPA believes adding a new paragraph (f) in § 172.202 to address the use of authorized abbreviations is unnecessary and the petition is denied.

Section 172.203. A petitioner recommended that the requirement in current § 172.203(c) regarding additional shipping paper information be amended to "require" that shipping papers for all empty packagings, not just empty tank cars containing a residue of a hazardous material, contain the words, "Residue: Last Contained * * *" in association with the basic description. The petitioner believes that the permissive wording in § 172.203(c) may lead to confusion, particularly when transporting hazardous materials by water. RSPA disagrees and denies this petition.

HMAC stated that, in § 172.203(i)(2), the entry "skin corrosive only" is no longer required for under deck stowage on cargo ships, and recommended that this paragraph be corrected to reflect this. RSPA agrees and § 172.203(i) is revised accordingly.

The Conference on the Safe Transportation of Hazardous Articles (COSTHA) recommended removal of the "Aerosol" entries from the list of shipping names in paragraph (k)(3), which requires inclusion of the technical name on shipping papers. The petitioner stated that "Aerosols" in the UN, IMO, RID and ADR do not include the "n.o.s." qualifier, and the technical name is also *not required on shipping documentation* for "Aerosols" under the UN, IMO or ICAO. RSPA agrees and accordingly, is removing the four aerosol n.o.s. proper shipping names from the list in paragraph (k)(3).

Paragraphs (m)(1) and (m)(2) are revised to ensure that materials or mixtures meeting the definition of Division 6.1, Packing Group I or II, are properly described on shipping papers. Paragraph (m)(1) requires the word "poison" to be entered in association with the basic description if the proper shipping name of a Division 6.1 material does not indicate that it is a poison. Similarly, paragraph (m)(2) requires the technical name of a compound or principal constituent of a mixture that causes it to be classified as a poison to be entered on the shipping paper if that technical name is not included in the proper shipping name of the material in the § 172.101 Table.

Paragraph (m)(3) is revised to clarify the distinction between gases and liquids which are poisonous by inhalation that require additional shipping paper entries. It specifies that for materials poisonous by inhalation as defined in § 171.8, the words "Poison-Inhalation Hazard" and the words "Zone A," "Zone B," "Zone C," or "Zone D," for gases, or "Zone A," or "Zone B" for liquids, as appropriate, shall be entered on the shipping paper immediately following the shipping description.

Several petitioners recommended that paragraph (m)(3) be amended to indicate that "hazard zones" do not apply to liquids in Division 6.1, Packing Group II and III materials, and to clarify application of the additional description requirement, "Poison-Inhalation Hazard", on shipping papers for other classes of materials, such as corrosives and flammables, that are inhalation hazards. RSPA agrees and paragraph (m)(3) is revised accordingly. A petitioner suggested that the 1-liter capacity or less shipping paper exception for entering the words "Poison-Inhalation Hazard" for materials poisonous by inhalation be reinstated. The petitioner suggested that less restrictive alternatives may be more appropriate (e.g., apply 1-liter capacity exception to liquids only, not gases; maximum size limitation would be 500 ml; and for combination packaging, require special packaging, such as hermetically sealed outer metal can to contain primary container; and require marking and labeling, but no placarding). RSPA disagrees that the 1-liter shipping paper exception for materials poisonous by inhalation should be reinstated. As discussed in *the preamble of the final rule* [55 FR 52417], RSPA believes any quantity of a material having an inhalation hazard that is spilled or leaking from a damaged package poses health risks to emergency response personnel. By showing "inhalation hazard" on the shipping paper, as well as packagings, this fact is immediately communicated to emergency responders. For the reasons mentioned above, the 1-liter exception will not be reinstated. Therefore, the *additional entry on shipping papers as* prescribed in § 172.203(m)(3) is applicable to any quantity of materials poisonous by inhalation.

3. Subpart D; Marking

Section 172.301. Several petitioners recommended adding a new paragraph (a)(3) to permit packages to be marked with required international markings, such as "1.4S", when no label is required for small arms shipped domestically.

Under the HMR, hazardous materials may be transported in the U.S. when shipped in accordance with the regulations under ICAO and IMO (§§ 171.11 and 171.12, respectively). Consequently, the use of labeling and *marking under international regulations* is not prohibited and is not a violation of the HMR. The following are examples of shipping names not requiring hazard warning labels, as specified in Column 6 in the § 172.101 Table (Docket HM-181), which may be shipped in the U.S. in accordance with international marking and labeling requirements under ICAO or IMO: 1) Cartridges for weapons, blank; (Cartridges, small arms, blank), 1.4S, UN 0014, II; and 2) Cartridges for weapons; inert projectile (Cartridges, small arms), other than blank, 1.4S, UN 0012, II. Therefore, adding a new paragraph (a)(3) in § 172.301 is not necessary.

Section 172.302. One petitioner asked RSPA to amend paragraph (b) to allow *marking of proper shipping names on* smaller portable tanks in letters "not less than one inch high." The petitioner stated that the two-inch letters specified in § 172.302(b)(3) would be "difficult to fit" on his fleet of tanks with a rated capacity of 660 gallons or less or with a maximum rated gross weight of less than 7,700 pounds. RSPA agrees in principle with this petition and is extending relief, consistent with the placarding exception for "small"

portable tanks in § 172.514, to portable tanks having a capacity of less than 3,785 L (1,000 gallons). RSPA also is accepting petitions recommending revision of the cargo tank marking size to require a 50 mm (2 inch) marking. Accordingly, consistent with the 50 mm marking required for cargo tanks in § 172.328(b), paragraph (b)(3) is revised to specify a 50 mm (2 inch) mark for cargo tanks and other bulk packages.

In order to relieve some of the burden associated with remarking bulk packages due to minor changes in shipping names, RSPA is adding a new paragraph (f) stating that a bulk packaging marked with a proper shipping name prior to October 1, 1991, does not have to be remarked if the key words of the old mark are identical to those currently specified in the § 172.101 Table. For example, a tank car marked "ANHYDROUS AMMONIA" need not be remarked "ANHYDROUS AMMONIA, LIQUEFIED."

Section 172.303. Several petitioners stated that the requirements for prohibited marking in paragraph (a), as written, would prohibit the use of terms used generically, such as paint, ink or cotton, from being used in connection with a non-hazardous product, when the name is the same as the hazardous product. They suggested that the matter can easily be solved if "or" is replaced with "and" between the words "shipping name" and "identification number." The effect would be that a package containing a non-hazardous product, whose name is the same as a hazardous product, when not marked with a UN or NA identification number, would not be in violation of the prohibited marking provision. RSPA agrees in principle with petitioners. However, changing the conjunction to "and" would permit either the shipping name or the identification number, but not both to appear on a package. This could lead to confusion. Instead, RSPA is providing an additional exception in paragraph (b) for those shipping names which describe non-regulated materials.

Several petitioners objected, for different reasons, to the exceptions provided in paragraphs (b)(1) and (b)(2). One petitioner objected to allowing non-bulk packages, under certain conditions, to remain marked. The petitioner believes that the exceptions may lead to confusion on the part of carriers, inspectors, enforcement officers, and emergency responders, and stated that requiring removal of marking, or covering the marking would present no burden to industry. RSPA is not aware of problems caused by this exception, which has been in the regulations, at § 173.29(d), for some time.

Another petitioner objected to the requirement to cover or obliterate the marking (§ 172.309(b)(2)) when moving an empty tank car from manufacturing facilities, or to or from cleaning or repair facilities. The petitioner said that, although the concept *not* to have the shipping name shown on a clean empty tank car is noteworthy, strict adherence on a tank car is a problem, recommending that RSPA permit empty, clean tank cars, moving from tank car manufacturing facilities, or to or from tank car cleaning or repair facilities, to remain marked with the hazardous material shipping name and identification number without securely covering or obliterating the marking. RSPA is denying this petition. As with the provision addressed in the previous paragraph, this is a long-standing provision previously found in § 173.29(d). RSPA believes covering of markings on empty bulk packagings is necessary to preclude confusion or unnecessary response on the part of emergency responders.

Section 172.312. Several petitioners recommended revision of requirements in paragraph (a)(2) for display of orientation markings on liquid hazardous materials in non-bulk packagings. They suggested that RSPA specify that the marking only "pictorially" conform to the ISO 780–1985 standard, to allow for commonly used methods of orientation markings on packages containing hazardous materials. They stated, for example, that the orientation marking shown in the ICAO Technical Instructions is widely used and readily recognized and understood. One petitioner recommended that two additional exceptions to the orientation marking requirements in paragraph (a) be included in paragraph (c) for manufactured articles and when the top closure is similar to the bottom closure or seal (e.g., a dry cell battery). The petitioner stated that in such cases the orientation of the inner package is either irrelevant or not applicable with respect to the closures of the inner packagings.

RSPA agrees. Therefore, in § 172.312, paragraph (a) is revised to require that the orientation marking only "pictorially" conform to the ISO 780–1985 standard, and exceptions are added in paragraph (c) for orientation markings for liquids in hermetically-sealed inner packagings and manufactured articles.

Section 172.313. RSPA is revising paragraph (a) to clarify package marking requirements for gases and liquids that are materials poisonous by inhalation as defined in § 171.8. This revision addresses HMAC's request to eliminate the need in paragraph (a) for marking "Inhalation Hazard" on packages containing lesser hazard Division 6.1 liquids.

One petitioner stated that the location for marking the phrase "Inhalation Hazard" on tank cars, as specified in paragraph (a), for a Division 2.3 material or a poisonous liquid, is not appropriate. The petitioner recommended that instead of locating the marking in association with the labels or placards, the marking would better communicate the "inhalation hazard" to emergency response personnel if it were located "in association with the required shipping name." The petitioner stated that because the placard displays the pictorial representation of poison (i.e., symbol of the skull and crossbones), the placement of the required marking is redundant. RSPA believes that locating this warning in association with a proper shipping name, when one is required, is equally as visible as when located near labels or placards. Therefore, RSPA is revising paragraph (a) to permit either location. A petitioner questioned the need to permanently mark the word "POISON" on non-bulk plastic outer packagings, as specified in § 172.313(b), used as single or composite packaging for materials in Division 6.1. The petitioner stated that RSPA had no basis for extending this provision to materials with a relatively low degree of toxicity, and that the provision should be limited to materials in Division 6.1, Packing Groups I and II. RSPA disagrees. Currently, the HMR requires that each polyethylene packaging used as an outside packaging for materials meeting the definition of a poison be permanently marked with the word "POISON" (§ 173.24(d)(4)). RSPA believes that extension of the requirements to permanently mark the word "POISON" on non-bulk plastic outer packagings used as a single or composite packaging for materials in Division 6.1 is necessary. This requirement will help ensure that foodstuffs are not packed in the same drum or package with the poison material. Therefore, the requirements in § 172.313 will remain unchanged in the final rule.

Section 172.320. Several petitions were received regarding the requirement in § 172.320 to mark packages with the approval number (i.e., EX-number) of the explosive contained therein. Products that are not given EX-numbers and for those packages that are marked with national stock numbers or product codes

that are traceable to the EX-number were excepted from this requirement. Petitioners claimed that this requirement will not enhance safety but will lead to confusion and unnecessary costs and that § 172.320 should be removed from the HMR. In addition, one petitioner stated that they were not aware of "national stock numbers" or "product codes". One petitioner requested that "jet perforating guns, charged, NA0124 and UN0124" be excepted from this requirement because jet perforating guns are not approved by RSPA, only the charges in the perforating gun are approved. Another petitioner requested that shipments from Canada be excepted from this requirement.

RSPA believes that the requirement to place EX-numbers on packages of Class 1 materials will increase the level of safety associated with transporting Class 1 materials. This marking requirement will facilitate the enforcement of the HMR which will in turn lead to an increase in conformity with these requirements. RSPA recognized that other methods could be used to identify the approval number of a Class 1 material. One of these methods is national stock numbers. National stock numbers are recognized numbers assigned by the Department of Defense to identify commercial products. Another method is the use of a product code. This idea was presented by a petitioner to Docket HM-181A, Notice No. 90-5 who stated that "[t]he name of the manufacturer and the product trade name offer ready identification without reference to the "EX" number. Verification of product approval can be made through referencing of these markings." The markings referred to by this petitioner were those required for commercial explosives in 27 CFR part 55. It is RSPA intention to allow such marking in lieu of the EX-number as long as they are traceable to the EX-number. Therefore, the petitions that requested that § 172.320 be removed are denied.

RSPA is amending § 172.320, for clarity and to allow EX-numbers to be placed on shipping papers in lieu of being marked on packages. This should allow the shipper sufficient flexibility in complying with the requirement to identify that the explosive items being transported have been approved by the Associate Administrator for Hazardous Materials Safety. RSPA is also amending § 172.320 to delete reference to exemption DOT E-9246 because RSPA believes that exception from the EX-number marking requirement should be a part of the exemption rather than an exception built into the regulations.

In addition, RSPA believes that the EX-number requirement should apply to all shipments of Class 1 materials transiting the U.S. Therefore, a petition to except shipments from Canada from these requirements is denied. RSPA is also denying the request that UN0124 and NA0124 be excepted from the EX-number marking requirement. If no EX-number has been given to the article, the number assigned to the charge should be used.

Section 172.326. Several petitioners recommended removal of paragraph (a) requiring portable tanks to be marked on both sides with the proper shipping name of the material being transported. They contended that since portable tanks must also be marked with the ID number of the material together with vehicle placards that "the extraordinary requirement of stencilling the name of each commodity is unnecessary and burdensome in view of the cost involved." Four petitioners cited cost estimates of up to $300 in materials and time to re-apply product markings each time different materials are transported. One petitioner said that uses of most portable tanks "change from product to product." Stencilling the product name may have been appropriate for containers in dedicated service for one or two products, a petitioner pointed out, but this practice is conducted less frequently now. Another petitioner contended that eliminating the product marking requirements in paragraph (a) would create greater efficiencies in the use of these tanks.

One rail carrier urged RSPA to except IM-specification tanks from the marking requirement because IM tanks "are in most respects, similar to other liquid bulk transportation packaging. They differ from cargo tanks only in that they are not rigidly and permanently attached to the vehicle chassis." Other petitioners agreed that marking and placarding of portable tanks "should be the same as cargo tanks."

These petitions are not accepted because RSPA believes that proper shipping name information must be maintained on all portable tanks. Contrary to the contentions of petitioners, this is not a new requirement. For years, the HMR have required all portable tanks to be marked with the proper shipping names of materials contained; and nothing in the existing § 172.326 or in revisions to this section in the final rule requires that the product mark be "stencilled" on the tank. The regulations only require that the proper shipping name be "legibly marked on both sides" in two-inch letters.

IM specification and other portable tanks are treated differently from cargo tanks or rail tank cars with respect to product marking because they often are exposed to significantly different transportation situations involving a greater number of personnel who need the additional information. Unlike other bulk equipment, portable tanks are loaded, transferred between modes, unloaded and frequently maintained in temporary storage awaiting transportation while between modes (i.e., at a pier or railroad ramp). RSPA believes that the proper shipping name applied to both sides of all portable tanks, in addition to required marking of identification numbers, makes product identification more accessible to enforcement and emergency response personnel who may first encounter incidents involving portable tanks.

Paragraph (c) is revised to include the words "containing a hazardous material" following the words "portable tank".

Section 172.330. In response to a petitioner who pointed out that existing requirements in § 172.330(a)(2) to mark tank cars and multi-unit tank car tanks with the identification number specified in the § 172.101 Table, RSPA is adding paragraphs (a)(1)(ii) and (a)(2)(ii) accordingly to require the application of that mark.

Section 172.332. One petitioner recommended that RSPA align the size of the orange panel, which is used to display the identification number marking, with the IMDG Code (i.e., 120 mm X 300 mm) for uniformity. RSPA is concerned that the reduced size of IMDG Code identification markings may make them more difficult to see in emergency response situations. For this reason, the petition is denied.

3. Subpart E: Labeling

Section 172.400a. Several petitioners recommended removing paragraph (a)(1)(i) which provides exceptions for labeling cylinders containing a Division 2.1 or Division 2.2 gas that is not poisonous. One petitioner recommended revising paragraph (1) to except a Division 2.3 (poisonous gas) material from the labeling exceptions. These petitions are denied. The HMR now requires labeling, as specified in § 172.400, for a poisonous gas and, in the final rule under Docket HM-181, extends this requirement to Division 2.3 gases under the UN classification system. Therefore, the exceptions for labeling permitted under paragraph (a) do not apply to a Division 2.3 gases.

COSTHA recommended adding a new paragraph (8) to except from labeling, a

material which meets the definition of Division 6.1 (poisonous) material and which conforms to the limited quantity provisions of § 173.153(b). COSTHA believes shippers should not be required to apply POISON or KEEP AWAY FROM FOOD labels for Division 6.1 poisons when packaged in UN combination packagings meeting § 178.601(g)(2).

RSPA disagrees. Limited quantity shipments of poisonous materials are required to be labeled under the HMR. This provision is also extended to limited-quantity shipments of Division 6.1 (poisonous) materials under the UN classification system. Exceptions are permitted only under the provisions of exemptions from the regulations. Currently, there are long-standing exemptions authorizing the transportation of limited quantities of poisonous liquids and solids in packagings which are excepted from bearing the POISON label (e.g., DOT–E–7909). RSPA notes that provision is made in § 177.841 for transporting packages bearing POISON or KEEP AWAY FROM FOOD labels with foodstuffs, subject to certain conditions.

Section 172.402. For regulatory clarity, RSPA is reorganizing paragraph (a). In response to a petition, RSPA is relocating § 172.405(b) to § 172.402(b). Existing paragraphs (b) and (c) are redesignated as paragraphs (c) and (d).

Paragraph (d) is revised to require each packaging containing a radioactive material that also meets the definition of one or more additional hazards, except Class 9, to be labeled as a radioactive material as required by § 172.403, and labeled for each additional hazard.

Section 172.405. One petitioner objected to the provision in paragraph (a) to permit, as an option, inclusion of text indicating a hazard on a label, as provided in paragraph (a) for classes 1, 2, 3, 4, 5, 6, and 8. The petitioner stated that there is no safety benefit to eliminating this descriptive language and that the written description is helpful, particularly to casual or temporary dock employees who may not be familiar with the significance of hazard class numbers or pictorial symbols. RSPA disagrees. Section 172.401(c), which is not changed by this final rule, allows packages of hazardous materials bearing labels which are in conformance with the UN Recommendations, ICAO Technical Instructions, IMDG Code, and Canadian TDG Regulations, to be shipped in the U.S. These labels do not have text indicating the hazard, but display pictorial hazard warning symbols, which are internationally recognized. Paragraph (a) provides shippers with the option to use "text," such as used under the HMR, or "symbols," such as used on international labels, to indicate the hazard. Therefore, the provisions in paragraph (a), providing the option to use text or only symbols on labels to indicate the hazard, will remain unchanged in this final rule.

Paragraph (b) is revised to clarify that if an OXIDIZER label is modified to an OXYGEN label, the word "OXYGEN" must appear on the label.

Section 172.406. RSPA is revising paragraph (a)(1)(ii) to require labels to be placed near the proper shipping name, as previously required under § 172.406(a). Several petitioners recommended adding a new paragraph (a)(1)(iii) to clarify that the orientation of labels on a package may be shown either square-on-point or in other orientations dictated by package size. RSPA disagrees. Although it is intended that labels be shown square-on-point, it is often impractical or inadvisable to do so. Other orientations are often necessary, not just because of package size limitations, but also because of package shape. For example, placement of a label on the top head of a drum does not conform to a square-on-point orientation, but is acceptable. Therefore, RSPA denies these petitions. The introductory text of paragraph (e) is revised for clarity.

Section 172.407. Paragraph (d)(4) is revised to delete references to Office of Hazardous Materials Color Charts which are no longer available for public sale. RSPA is reviewing alternative color standards and future rulemaking activity is anticipated.

Section 172.411. A petitioner stated that there was no mention of the use of the EXPLOSIVE subsidiary label, as prescribed in § 172.411. The petitioner suggests that some mention of the EXPLOSIVE subsidiary label be included in § 172.402.

RSPA believes there is no need to include an explanation of the use of the EXPLOSIVE subsidiary label because a material which may have a subsidiary explosive hazard, but is not classed as such, is identified in the § 172.101 Table. Therefore, no further explanation is necessary.

Sections 172.411 through 172.448. Because some of the labels shown in the Docket HM–181 final rule were not correctly displayed, all labels are republished for clarity.

5. Subpart F; Placarding

Section 172.502. In § 172.502, paragraph (b) is reorganized and the exception in paragraph (c) allowing the display of an identification number on a white square-on-point configuration is added as a new paragraph (b)(2).

Section 172.504. Paragraph (c) is revised to exclude all bulk packagings from the "1000 pound exception." This is consistent with requirements in § 172.514(b) that bulk packagings containing residues remain placarded.

Paragraph (f)(4) is revised to include "EXPLOSIVES 1.3" materials. Paragraph (f)(9) is added requiring vehicles transporting combustible liquids in non-bulk packagings that also meet the definition of a Class 9 material to display either the COMBUSTIBLE or Class 9 placard. The COMBUSTIBLE placard need not be applied to vehicles transporting combustible liquids in non-bulk packagings. A new paragraph (g) is added requiring the applicable compatibility group letter to be displayed on placards for shipments of Class 1 explosives by aircraft or vessel.

Several petitioners expressed their concerns regarding placarding for Class 9 materials. They stated that the Class 9 placard should not be required for use in this country due to the fact that the vast majority of these commodities are presently shipped domestically as either ORMs or Consumer commodities, which are excepted from placarding.

The petitioners stated that intrastate motor carriers of materials in the ORM class, other than hazardous wastes, have not been subject to 49 CFR parts 390–397, the Federal Motor Carrier Safety Regulations (FMCSR), because these materials were not subject to placarding. They are concerned with the impact the "Class 9" reclassification and placarding requirements may have on intrastate motor carriers because they may now be subject to the FMCSR. RSPA believes it is necessary to require placards for Class 9 materials both to communicate appropriate information to emergency response personnel, and for uniformity with the international regulations. RSPA notes that intrastate motor carriers transporting hazardous substances in bulk are currently subject to the FMCSR; for example, financial responsibility and commercial driver's license requirements. Since many states have adopted the FMCSR and apply those requirements to intrastate motor carriers, the display of the Class 9 placard will have minimal impact.

One petitioner recommended providing an exception from the placarding requirements, identical to the exception in § 172.504(f)(3), *not* to require display of a NON-FLAMMABLE GAS placard on a motor vehicle if the vehicle is also required to display a POISON GAS placard. RSPA disagrees, and notes that the petitioner provided

no justification for the requested exception.

Several petitioners recommended excepting "Molten sulfur" from placarding, as required by § 172.504(a). RSPA disagrees with petitioners that use of a Class 9 placard for miscellaneous hazardous materials, which was adopted for uniformity and consistency with the international regulations, will lead to confusion and indecision by emergency response personnel. Currently, the identification number marking "2448" for molten sulfur may be placed on a white square-on-point configuration or orange panel. Under Docket HM–181, the identification number marking may be placed on the Class 9 placard as well. Emergency response personnel are familiar with the placarding system and the use of identification numbers to locate information to assist them in mitigating hazardous materials incidents. RSPA notes that a three-year transition period has been provided to minimize the impacts of placarding changes. Therefore, RSPA sees no justification for excepting "Molten sulfur" from placarding requirements, and these petitions are denied.

Section 172.505. This section is revised for clarity.

Section 172.510. Paragraphs (a)(2) and (a)(3) are revised to remove the words "Packing Group I" for Division 2.3, Hazard Zone A materials. One petitioner recommended that paragraph (d), which was not changed under Docket HM–181, be revised to extend the FUMIGATION placarding requirements to all modes of transportation. RSPA believes the fumigation issue is beyond the scope of this rulemaking. Therefore, no change is made at this time.

Section 172.519. Paragraph (a) is revised to clarify that the Mullen Test, noted in paragraph (a)(2), is intended to be used for placards made of fagboard.

HMAC recommended that the size requirements for placards in paragraph (c) be changed from "at least 273 mm (10.8 inches)" to "a minimum size of 250 mm (9.9 inches)," for consistency with the IMDG Code requirements. RSPA disagrees and is denying this petition. The 273 mm (10.8 inches) size of placards is currently used in the U.S. RSPA is concerned that a reduction in size for placards and, effectively, in the size of identification numbers on placards, may be detrimental to recognition of these important hazard communication elements. The larger placards enable emergency response personnel to identify the hazardous materials from further distances (e.g., poison) when mitigating an incident involving hazardous materials. Another petitioner recommended that § 172.519(f) be limited to shipments made under §§ 171.11, 171.12 and 171.12a. Because of aforementioned concerns, RSPA grants this petition. RSPA notes, however, that it is initiating a rulemaking to address the effectiveness of placarding, as mandated by section 25 of the Hazardous Materials Transportation Uniform Safety Act (HMTUSA). This issue will be raised as part of that rulemaking.

AAR and other petitioners recommended amending the HMR to add a new red over white placard for all flammable liquids with flash points between 23°C and 60°C; that is, a unique placard for all Class 3 Packing Group III materials. They stated that including this requirement in the HMR would have several beneficial effects (i.e., simplify emergency response training and the elimination of train placement requirements for flammable liquids with flash points between 23°C and 38°C). RSPA believes this issue is beyond the scope of this rulemaking.

Sections 172.522 through 172.525. In each section, paragraph (b) is revised to include the compatibility group letter.

Section 172.524. In § 172.524, in paragraph (a), the "1.5 BLASTING AGENTS" placard is revised to show an "*" above the class number for the compatibility group letter, which was inadvertently omitted from the placard display.

Sections 172.522 through 172.560. Because some of the placards shown in the Docket HM–181 final rule were not correctly displayed, all placards are republished for clarity.

Part 173; Shippers, General Requirements for Shipments and Packagings

1. Subpart A; General

Section 173.2a. Two petitioners addressed precedence of hazard with respect to Division 6.1 liquids. For consistency with the IMDG Code and ICAO, HMAC suggested that RSPA revise the table in paragraph (b) to show that "for the purpose of determining the primary hazard class in this paragraph, a Division 6.1, Packing Group III hazard, mixture or solution, may not be taken into account except in the case of a pesticide." RSPA agrees and is adding a new superscript 4 to the Division 6.1, Packing Group III entry, cross referenced with Class 3, Packing Group III, and a footnote to indicate that, for pesticides, only Division 6.1, Packing Group III, takes precedence over Class 3, Packing Group III.

Establishing precedence of hazard in cases of "divergent Packing Groups" troubled two petitioners who asked RSPA to provide more guidance. They assumed, for example, that a mixture of Class 3 Packing Group III and Class 8 Packing Group I liquids (shown in the table to have a Class 8 primary class) would be assigned Packing Group I. RSPA is revising paragraph (a)(8) to clarify this situation.

RSPA also was asked to specify how precedence of hazard is determined for materials meeting the definition of more than two hazards. In these cases, precedence can be determined by deriving the precedence of any two hazard classes and then comparing the result with the third hazard class to establish the order of precedence of hazard. This procedure can be repeated for any number of hazard classes. For example, precedence of hazard for a material meeting the definitions of Class 3, Packing Group II, Class 8, Packing Group II, and Division 6.1, Packing Group III is Class 3, Packing Group II.

Section 173.3. Several petitioners claimed that salvage drums will not consistently pass the three-foot Packing Group III drop test with liquids required in paragraph (c)(1), seriously affecting the availability of these drums for emergency operations. They claimed requiring salvage drums to meet the Packing Group III performance level for liquids will render most current salvage drums obsolete. Other petitioners asserted that required tests for salvage drums may lessen their range of applications. HMAC said the performance capabilities of salvage drums are limited because they are large open head units. A petitioner pointed out, "However, when correctly used, a salvage drum will never be required to hold liquids. All free liquid is required to be absorbed. Existing salvage drums have performed well, and where leakage is present, absorbent material is included within the package."

Another petitioner suggested that a salvage drum tested and marked for solids makes more sense given the new UN entry, "Solids containing flammable liquids, n.o.s." Because the presence of free liquids must be absorbed by absorbent material, he said "the most logical approach is to mark the drum for solids. This is a more understandable marking that would also help reinforce the requirement that there be no free liquid" in the salvage drum at the time it is closed for transport. Recognizing that liquids can settle out of solid materials even if the package is closed with no "free" liquids, one petitioner recommended that RSPA adopt the 20

kPa leakproofness test method requirement for Packing Group II in § 178.604(e)(2) instead of the 35 kPa now required in § 173.3 for liquids in the salvage drum.

RSPA agrees with the principle that a properly used salvage drum with sufficient absorbent material will hold no free liquid and that testing requirements should appropriately address the manner in which salvage drums are actually used. Thus, RSPA is revising paragraph (c)(1) to require salvage drums to withstand testing with liquid solids at the Packing Group III performance level, including a leakproofness test of 20 kPa (3 psi). To ensure the availability of salvage drums for emergency service throughout the U.S. during the transition period, RSPA also is revising paragraph (c)(1) to allow any salvage drums manufactured and marked before October 1, 1993 to pre-HM-181 requirements, to continue in service.

Section 173.4. For international consistency, RSPA accepts a recommendation that the cross-sectional compressive load test in paragraph (a)(6)(ii) be replaced with the compression test specified in § 178.606.

Section 173.9. A proposal by two petitioners to remove references to "rail car" in paragraphs (a) and (b) so that this section would apply to all transport vehicles moving under fumigation is considered beyond the scope of the final rule.

Section 173.12. Paragraph (b) is reorganized for clarity and a new paragraph (b)(3) is added specifying materials not permitted to be shipped in lab packs, including liquids classed in Division 6.1, Packing Group I. Paragraphs (d)(1) and (d)(2) are added stating that technical name requirements on shipping papers and package markings do not apply to lab packs except packagings containing hazardous substances, which must be described as required in § 172.203(c), or Division 6.1 materials subject to requirements in § 172.203(m). HMAC's recommended revision of paragraph (b) to require the words "lab pack" entered in parentheses after the generic description from the § 172.101 Table is considered beyond the scope of the final rule.

Several petitions addressed the meaning in paragraph (a) of "equivalent" open head drum" when a closed head drum is substituted for a open head unit. Petitioners contended that waste disposal firms misinterpret an "equivalent" open head replacement to mean a unit constructed of the same material but without regard for the design and performance specified for the closed head drum. Thus, they interpret paragraph (a) to allow any open head drums, creating potential safety problems. One petitioner said that an "equivalent" open head drum should comply with the part 178 marking and performance requirements that applied to the closed head unit it replaces. RSPA agrees that in cases where an "equivalent" open head drum is selected for the shipment of hazardous wastes, it must meet the performance standards of any originally authorized closed head drum. Therefore, petitions requesting removal of the word "equivalent" are not accepted.

Two petitioners urged RSPA to delete the requirement in paragraph (b) that lab packs be transported for disposal or recovery by highway only, adding that "more and more intermodal transport is being used to carry hazardous waste." They contended that there is no safety reason for restricting lab pack shipments to the highway mode. These petitions are rejected because RSPA has determined in the final rule that more stringent controls are to be placed over the packaging and transport of hazardous wastes and is not electing to broaden the range of permitted lab pack transport beyond the highway mode. However, in the final rule, RSPA is relaxing controlled transport requirements by permitting excepted lab pack shippers to use common highway carriers.

2. Subpart B; Preparation of Hazardous Materials for Transportation

Section 173.21. RSPA is accepting a petition from the Society of Plastics Industry to revise the introductory text to paragraph (f) to clarify that a material with a self accelerated decomposition temperature (SADT) of 50C (122F), that gives off a dangerous quantity of heat or gas, is forbidden in transportation.

Section 173.24. A number of petitioners addressed the determination of "no significant release" or "no identifiable release" as a condition of package integrity before offering shipments for transport. They contended that the criterion "no identifiable release" in paragraph (b)(1) is not universally applicable because not all releases are harmful. One petitioner said paragraph (b)(1) "fails to acknowledge there are degrees of hazard recognized in the three Packing Groups . . . and the technical and economic limitations of packages and equipment." Petitioners suggested revisions to paragraph (b)(1) by requiring "no significant" release or "no release in a quantity that is harmful to persons or the environment." One petitioner recommended restricting the "no identifiable release" requirement to shipments of Class 7, Division 2.3 and Division 6.1 materials.

RSPA believes that a determination of "no release" or "no significant release" or no release based on varying degrees of hazard are unquantifiable, subjective and are not applicable in the regulations. Rather than providing an undeterminable standard of measurement, paragraph (a)(1) establishes a principal shipper responsibility. It requires the person who prepares a properly certified package for transport to use good judgment "without use of instruments" to ensure that the package will not release its contents under conditions normally incident to transportation. Therefore, paragraph (a)(1) remains unchanged in the final rule.

Several petitioners asked RSPA to interpret what may constitute the use of an "instrument" in complying with paragraph (b)(1). They asked, for example, if the application of soap bubbles to detect a leak could be construed as the use of an instrument. In this case, the answer is no. However, RSPA wishes to make it clear that if someone actually uses an "instrument" such as a gas chromatogram or ultrasound technology and detects a leak, it is still a leak, and the packaging is not in compliance with paragraph (b)(1).

The Plastic Drum Institute (PDI) urged RSPA to publish its "Compatibility Test Procedures for Plastic Drum and Receptacles" in the Federal Register as a proposed rule to supplement paragraph (e) by addition to and modification of Appendix B to Part 173. This booklet, submitted to RSPA in August 1990, offers an alternative method of compatibility testing and rate of permeation. RSPA will consider adoption of PDI's proposal into the regulations at a later date.

The Organic Peroxides Producers Safety Division (OPPSD) asserted that most temperature-controlled organic peroxides will not survive the 180-day compatibility test at 18 C, and asked RSPA to adopt a UN-recommended preliminary test of samples filled with intended ladings for "a long period of time" without reference to temperature. RSPA does not believe that this proposed procedure is adequate. However, the procedures for testing chemical compatibility and rate of permeation contain a provision for the use of alternative procedures if they are approved by the Associate Administrator for Hazardous Materials Safety. RSPA would consider a specific alternative to the chemical compatibility test for organic peroxides under this

approval provision if it were submitted to the Associate Administrator.

A petitioner asked RSPA to revise paragraph (e) to make it clearer that the shipper requirement to assure package compatibility with its lading applies to all packagings, not just plastic packaging. The petitioner contended that paragraph (e)(3) gives the impression that non-plastic packagings do not have to be tested for compatibility. RSPA is denying this petition. Paragraph (e)(1) makes it sufficiently clear that persons offering hazardous materials for transportation must ensure that all packagings are compatible with their lading. Paragraph (e)(3) is limited to plastic packagings, and requires testing under certain conditions.

One petitioner objected to paragraph (g) which prohibits venting of packages containing materials likely to evolve toxic, flammable or asphyxiant gases. The petitioner claimed that he has used vented drums for years to ship Class 3 Packing Group III materials "characterized by slow evolution of small amounts of hydrogen gas at ambient temperatures . . . without a single incident resulting in illness or injury because of venting." He added that prohibiting venting in this case "may encourage use of less safe procedures" and that paragraph (g)(2) is not in agreement with the UN Recommendations or the IMDG Code. RSPA agrees that venting of these materials can be permitted under certain circumstances, consistent with international standards. Therefore, paragraph (g)(2) is revised to permit venting when "the evolved gases are not poisonous, or likely to create a flammable mixture with air or be an asphyxiant under normal conditions of transportation."

Paragraph (g)(4) is revised to clarify that venting is permitted if a packaging is designed to preclude an "unintentional" release of hazardous materials.

Section 173.24a. A number of petitioners urged RSPA to remove paragraph (a)(5), requiring that packagings be capable of withstanding a vibration test, until the UN recommends the test and international modal agencies adopt it. They claim the vibration standard, as a domestic exception, will put U.S. shippers at a competitive disadvantage in both domestic and international markets. One petitioner contended that vibration testing has merit only when applied to drums intended for the transport of liquids. Another petitioner questioned the value of vibration testing for explosives packagings. The National Solid Wastes Management Association (NSWMA) said few shippers or carriers of waste materials classed in Class 9 packaged in non-specification packages have the ability to perform a vibration test. NSWMA added, "it is only reasonable that vibration testing should be the responsibility of manufacturers."

The vibration standard in paragraph (a)(5) does not require testing. As stated in the preamble to the final rule, RSPA added the easily reproducible vibration test standard in § 178.608 to the UN-recommended Subpart M tests to account for conditions likely to be encountered in typical domestic transportation environments. Paragraph (a)(5) addresses the suitability of any hazardous materials package exposed to extensive vibration stresses during transportation. The shipper is not required to perform this test. Vibration capability can be based on voluntary testing, on previous experience in the use of design types subjected to high-vibration distribution systems, or on an engineering evaluation of package design and integrity with regard to vibration.

Although vibration testing as a capability is retained in the final rule, RSPA agrees that this test should be adopted as an international standard. Consequently, the U.S. recently proposed inclusion of a similar vibration standard in the UN Recommendations.

Two petitioners expressed concern about permitted use of Packing Group I-tested packagings for Packing Group II or III materials with higher specific gravities. One petitioner pointed out that paragraphs (b)(1)(i), (b)(1)(ii), and (b)(1)(iii), which permit lower hazard but higher specific gravity materials to be shipped in Packing Group I-tested packagings, are inconsistent with paragraph (b)(2) which prohibits a single or composite packaging from containing a solid to a gross mass greater than that marked on the package.

HMAC asserted that higher specific gravity liquids should be permitted in packagings "where the weight of the drum plus contents exceed the maximum design strength of the container if filled to rated capacity." In some of these cases, HMAC said "it will be impossible to obtain the performance rating needed to meet requirements based on full containers using current technology even with the employment of the sturdiest construction material available." HMAC recommended adoption of a formula to determine a maximum allowable net product weight for high specific gravity materials.

RSPA believes paragraphs (b)(1)(i), (b)(1)(ii), and (b)(1)(iii), allowing Packing Group I-tested packagings to contain Packing Group II and III materials when they do not exceed stated specific gravity limits, are consistent with UN recommendations linking package design types with the relative densities of the materials they are intended to contain. However, to remove perceived inconsistencies between the permitted use conversions and the general gross mass standard for solids, paragraph (b)(2) is revised as follows. "Except as otherwise provided in this section, a single or composite non-bulk packaging may not be filled * * *" RSPA is accepting a petition from HMAC to allow heavier solids in packagings rated for higher hazard level liquids, if they meet the specific gravity limits in paragraphs (b)(1)(i), (b)(1)(ii), and (b)(1)(iii). Paragraph (b)(3) is revised accordingly.

One petitioner asked RSPA to re-evaluate the requirement in paragraph (c)(1)(iii) that corrosive materials in bottles be further packed in closed inner receptacles before packing in outer packaging "because it conflicts" with UN Recommendations and ICAO requirements. This petition is not accepted because there already is an exception in § 173.161 for corrosive materials in chemical kits that is consistent with UN Recommendations and ICAO.

Section 173.24b. The five percent outage specified in paragraph (a)(3) for insulated and uninsulated tanks containing Division 6.1 Packing Group I liquids poisonous by inhalation was disputed by one petitioner who claimed "there is no need for an outage requirement above two percent." The petitioner said that over a period of a year, a five percent outage requirement would result in added shipments of these materials "increasing cost and risk due to the extra shipments." RSPA believes the provision is needed to reduce the potential of bulk packages containing poison by inhalation liquids from becoming liquid full in transportation and notes that the petitioner did not provide justification, based on safety considerations, for reducing outage to two percent. Therefore, the five percent outage requirement is retained.

HMAC recommended revising paragraph (d)(2) by removing the density of a material as a factor in determining the maximum weight of lading permitted in a bulk packaging. HMAC said, "In practice, volume is usually the variable that is adjusted to achieve correct lading weight." RSPA agrees and is revising paragraph (d)(2) by removing the phrase "due to its density."

Section 173.25. Paragraph (c) pertaining to poisons being transported in the same motor vehicle with foodstuffs, feed or other edible material, is revised to require a "liquid-tight and dustproof" overpack as specified in § 177.841(e) or in an overpack "which is a UN 1A2, 1B2 or 1N2 drum tested and marked at least for the Packing Group II performance level."

Section 173.28. RSPA reviewed 33 petitions for reconsideration addressing non-bulk package reuse requirements. Eight petitioners urged RSPA to align the 43 kPa (7 psi) leakproofness test requirement before reuse in paragraph (b)(2)(i) with the leakproofness test recommended by the UN and adopted for new drums in § 178.604 of up to 30 kPa (4 psi). Two petitioners asked RSPA to except steel drums in controlled distribution from the test. PDI asserted that the 7 psi test may be suitable for steel drums but is excessive for plastic packagings. PDI claimed that when plastic drums are pressurized to 7 psi, "they are severely deformed." However, The Association of Container Reconditioners-NABADA urged RSPA to retain the 7 psi test, contending that UN recommendations for the leakproofness testing of new drums "are set too low" to adequately detect leaks before reuse.

RSPA is denying petitions to except packaging from the leakproofness test before reuse in controlled distribution or on the basis of special package construction or capacity rating because petitioners offered insufficient data to justify taking such action. Petitioners offered no evidence, for example, that closed distribution systems would eliminate normal transportation stresses on reused drums that may lead to metal fatigue, abrasion of plastic material, denting and puncturing.

In principle, RSPA believes that leakproofness testing prior to reuse, or after reconditioning, provides a verifiable check that drums intended to be reused under normal transportation conditions are capable of maintaining the integrity to which they were originally certified. Thus, noting that the vapor pressure of some Packing Group I materials often exceeds 7 psi, RSPA is requiring reused drums intended to contain Packing Group I materials to withstand a leakproofness test of at least 7 psi. For drums intended to contain materials of lesser hazard that often present significantly less vapor pressure in normal transportation, RSPA is revising paragraph (b)(2)(i) to require the 20 kPa (3 psi) test specified for PG II and III materials in § 178.604(e) (2) and (3) for new drums. RSPA believes 3 psi is an appropriate level of leakproofness testing to avoid distortion of thinner-walled packaging.

RSPA is revising marking provisions in paragraph (b)(2)(ii). Drums reused without reconditioning must be marked with the letter "L" for a drum that successfully passes the leakproofness test specified in paragraph (b)(2)(i), the name and address or symbol of the person conducting the test, and the month and last two digits of the year the test was conducted. This marking conforms, in part, with sections 9.5.4(i) and (j) of the UN Recommendations addressing reconditioner certification. It is a certification that a person who reuses a drum without reconditioning has complied with the requirements of this section.

Eight petitioners opposed requirements in paragraph (b)(4) that metal and plastic drums and jerricans or the outer packagings of composite packagings must meet minimum thickness requirements marked in millimeters on drums intended for reuse. RSPA denies these petitions to remove minimum thickness requirements for the reasons given in the December 21, 1990 final rule (see page 52428).

RSPA accepts suggestions from several plastic package manufacturers to add minimum thickness table entries for 30 and 60 liter plastic drums and retain current minimum thickness requirements for the DOT specification 34 polyethylene drum. Therefore, minimum thickness standards for plastic packagings are revised as follows: 20 liters (L), 1.1 mm (0.03 inch); 30L, 1.1mm (0.03 inch); 60L, 1.8 mm (0.071 inch). Minimum thicknesses for 30L and 60L metal packagings are 0.7 mm (0.028 inch) and 0.9 mm (0.035 inch) respectively. Requirements for 40L, 120L, 220L and 450L plastic and metal packagings remain as specified in the final rule. RSPA also is revising the heading of column 1 of the table of minimum thicknesses in paragraph (b)(4) to indicate "Maximum capacity" which better describes the capacity of a packaging to be completely filled with liquid, and to be consistent with references to "maximum capacity" throughout the final rule, particularly within the manufacturing standards.

Several petitioners objected to the introduction to paragraph (b)(4), requiring drums authorized for reuse to be marked in millimeters with the minimum thickness of the packaging material without also requiring that this mark be made permanent. One petitioner asserted that not requiring a permanent thickness mark on a drum intended for reuse would oblige a person to physically measure that drum against a minimum thickness standard and to re-mark it after each trip throughout the reuse process. RSPA agrees, and is revising the introduction to paragraph (b)(4) by incorporating language from section 9.5.2 of the UN Recommendations stating that the mark indicating package material thickness on drums intended for reuse should be applied in a permanent form (e.g. embossed).

RSPA rejects assertions from several petitioners that a minimum thickness requirement for plastic inner receptacles "is unnecessary" because the strength and durability of a composite packaging "is not derived from the inner liner." RSPA believes that inner plastic packagings are vulnerable to such damage as creasing or puncturing during loading or unloading. PDI also pointed out that very few existing reusable composite drums with liners meeting paragraph (b)(5) requirements are available. In corrections to Docket HM-181, RSPA is retaining a thickness standard for inner plastic liners. However, it is revised to 1.0 mm (0.039 inch) to ensure the ready availability of this inner packaging, by permitting use of a DOT 2SL-type liner.

Section 173.31. Requirements for manway covers are relocated from §§ 173.242 and 173.243 to new paragraph (a)(8).

Section 173.32. HMAC's petition recommending a revision to paragraph (a)(6) authorizing an unlined DOT 51 portable tank constructed of stainless steel to be used in place of a lined DOT 60 portable tank is denied because there is not sufficient justification for taking this action.

Section 173.32b. For international consistency, two petitioners requested a revision of paragraph (b) to allow the two-and-a-half year visual inspection of IM portable tanks to be carried out within three months before or after the specified date. This revision was not proposed in Notice 87-4 and is considered beyond the scope of the final rule.

Section 173.32c. Six petitioners objected to the filling density requirements for portable tanks contained in existing § 173.32c(j) and urged RSPA to remove this requirement. Paragraph (j) specifies that IM portable tanks or compartments with a volume greater that 1,900 gallons may not be loaded to a filling density less than 80 percent by volume. Petitioners asked why RSPA is imposing minimum filling density requirements on portable tank users and not on cargo tank users. One petitioner claimed that the "loading of

highway cargo tanks at more or less than 80% full has never been required," and that "cargo and portable tanks are very similar in their use and operation." Other petitioners added that there is no evidence to support the 80 percent rule. They recommended that portable tank loading should be regulated as not exceeding maximum gross weight, capacity or approved temperature range as shown on certification plates. Although these comments may or may not be valid, paragraph (j) was not addressed in Notice 87–4, and is not germane to this final rule. Therefore, the petitions are denied.

In addition, RSPA is adding a new paragraph (q) to address insulation requirements for IM portable tanks containing molten materials.

Section 173.33. HMAC suggested a revision to paragraph (f), to state that if a higher integrity tank is constructed of stainless steel, lining should not be required. RSPA believes there is insufficient justification for taking such action. The majority of MC 331 cargo tanks are not made of stainless steel.

Section 173.40. Two petitioners asserted that paragraph (c)(2) requiring that the valve assembly on cylinders intended to contain poisonous materials that are also corrosive "be made gas tight by means of a seal cap * * *" would require the retrofit of millions of cylinders in chlorine service. The petitioners misunderstand that chlorine is not subject to this section. Packaging requirements for chlorine are contained in § 173.304.

The Compressed Gas Association (CGA) asked RSPA to provide more detail regarding the two-meter drop test specified in paragraph (d)(2) to determine the adequacy of valve protection for cylinders containing poisonous liquids. CGA pointed out that ISO is preparing a detailed standard for valve protection caps and guards and recommends that RSPA adopt that standard as an alternative. RSPA acknowledges that this alternative may be considered, but in the context of a future rulemaking action.

3. Subpart C; Definitions, Classification and Packaging for Class 1

In the preamble to the final rule, RSPA stated that in order for an explosive that had been approved under the old HMR to be transported after October 1, 1993, it would have to be reclassified under the new regulations (i.e., Docket HM–181). In addition, RSPA stated that it would provide, upon request, such reclassification. However, RSPA went on to say that all existing explosive competent authority approvals will become invalid on October 1, 1993. This last statement was incorrect. Explosive competent authority approvals will not become invalid on October 1, 1993. Such approvals will remain valid until further notice. In addition, any explosive material that has received a competent authority approval is not required to be reclassed because the approval already provides the new classification for the explosive material.

Several petitioners were concerned over the removal of the entry "ammunition, non-explosive" from the § 172.101 Table. Petitioners stated that if this entry is not retained that their non-hazardous commodities would have to be shipped as Division 1.4 materials. RSPA removed this entry from the § 172.101 Table because an explosive material that is correctly determined to be non-explosive would not be subject to the HMR unless the material meets another hazard class definition. RSPA does not believe that it is necessary to add a section to the HMR that states that if a material does not meet the definition of an explosive that the material is non-explosive. Therefore, RSPA is denying these petitions.

Section 173.50. Several petitioners requested that the 25 gram limitation placed on Division 1.4 devices be removed. Petitioners stated that the limit is arbitrary and inconsistent with the UN Recommendations and that materials that meet the tests for Division 1.4 materials should be classed as a 1.4 material without regard to quantity. Upon further review, RSPA is removing the 25-gram limitation on Division 1.4 materials. RSPA also is revising the definition of Division 1.4 to include substances and devices. As part of the approval process, RSPA will review very closely any device that contains over 25 grams of explosive material and that is recommended for Division 1.4. In addition, RSPA will not allow any such items to be classed by analogy; the devices must be subject to the appropriate tests. This administrative requirement will also be imposed on items that have been approved by a foreign competent authority.

One petitioner objected to the classification of PETN with not less than 25% water as a Division 1.1A material. The petitioner stated that this material should be classed as a 1.1D material as in the UN Recommendations. The petitioner stated that to classify PETN on the basis of the sensitivity level of dry PETN is not correct and that foreign manufacturers have been shipping water-wetted PETN safely for a long time. RSPA is classifying PETN as an initiating explosive, Division 1.1A material, because RSPA has test data to indicate that PETN wetted with 25% water gave positive test results on the UN Test 3(b)(i), BAM Friction Test.

Section 173.56. One petitioner requested that explosives approved by another foreign competent authority be allowed for transportation within the U.S. without further approval from RSPA. RSPA believes that the requirement for a U.S. approval, which existed prior to the amendments promulgated under Docket HM–181, is necessary to ensure the safe transportation of explosive materials in the U.S. Though RSPA accepts approvals issued by foreign competent authorities as the basis for an explosive approval within the U.S., RSPA reserves the right to reject any foreign approval. RSPA believes that the hazards associated with Class 1 materials are so great as to require this degree of government oversight. Therefore, RSPA is denying this petition.

Section 173.62. One petitioner requested that the particular packaging requirement "D13" be amended to state "end closures may be formed from the body material." The petitioner stated that this will allow the continued use of the DOT 23G specification packaging. RSPA does not believe that this change is necessary because as long as the 23G can meet the requirements for a 1G packaging, the 23G will continue to be authorized. Therefore, RSPA is denying this petitioner's request.

Several petitioners requested that numerous packagings be added to several of the packing methods in § 173.62. These packagings, however, are not currently authorized by the UN Recommendations. Therefore, RSPA finds this petition out of the scope of this correction document and denies these petitioners' request. One petitioner requested that the packaging exception provided for government-owned munitions in the Annex to the IMDG Code be incorporated into the HMR. RSPA concurs and has added this exception as paragraph (e) to § 173.62.

Several petitioners requested that Class 1 materials that are sent to packing method E–146 be allowed to be transported under packagings approved by the Associate Administrator for Hazardous Materials Safety. The petitioners stated that this would be in conformance with the UN Recommendations. RSPA agrees and is amending packing method E–146 to authorize the packagings that were noted in the final rule and any packaging approved by the Associate Administrator for Hazardous Materials Safety.

Section 173.63. In this section, RSPA is removing paragraphs (d) and (e) which

specified the conditions under which articles installed with igniters or initiators can be shipped when in the propulsive state. RSPA believes that such articles, which must comply with § 173.62(b)(5) and which states that all explosives shipped in the propulsive state must be protected from accidental initiation, should be allowed to be transported if they are transported in compliance with the general and applicable requirements of the HMR. Concerns for specific articles that could be shipped in the propulsive state can be handled through the approval process.

4. Subpart D; Definitions, Classification, Packing Group Assignments and Exceptions for Hazardous Materials Other than Class 1 and Class 7

Section 173.115. Paragraph (a) is reorganized to clarify the definition of Division 2.1 flammable gas. In response to two petitions, RSPA is revising paragraph (c)(2) to refer to the formula in § 173.133(b)(1)(i) for determining LC50 values for gas mixtures. RSPA also is clarifying that the criteria in paragraph (c) for materials classed in Division 2.3 specifically refer to "gases poisonous by inhalation" which are subject to additional hazard communications and packaging requirements in Parts 172 and 173. In other words, by definition in this section, any Division 2.3 material is also a poison by inhalation hazard material assigned Hazard Zones A through D.

Section 173.120. Several petitioners urged RSPA to remove the combustible class definition in paragraph (b)(1) and the combustible reclassification option in paragraph (b)(2). AAR and other petitioners asserted, as they did in comments to Docket HM-181, that the domestic combustible liquid classification introduces unneeded regulatory complexity, violating the stated aims of the final rule to simplify the HMR. AAR contended that the reclassification option will confuse rail personnel "who prepare shipping documents based on data submitted by a large number of shippers." AAR said the reclassification option will also confuse emergency responders confronted with identical commodities having different hazard classifications.

One petitioner pointed out that materials with flash points of 73° F or higher are presently excepted from specification packaging when shipped in non-bulk containers (§ 173.118(b)), so the option in paragraph (b)(2) offers little to shippers while "violating the principle of consistent hazard communication for these materials." AAR said there are other ways to distinguish between liquids below 100° F and those at or above 100° F. For example, AAR suggested that RSPA could exempt liquids with flash points above 100° F from all regulations or adopt AAR's proposed red over white placard for all Class 3, Packing Group III materials to distinguish between high and low flash point liquids.

RSPA disagrees with petitioners who would eliminate the combustible class altogether, believing that the significant number of domestically regulated materials with flash points between 38° C (100° F) and 93° C (200° F) cannot be ignored. RSPA believes that widespread shipping and in-transit storage practices, geared to the present flammable liquid definition, would be unnecessarily disrupted by another revision of the flammability range for liquid materials. This is both a safety and an economic issue. The reclassification option in paragraph (b)(2) maintains existing domestic practices in effect since 1974 when the Materials Transportation Bureau established the present domestic flammability range under Docket HM-102. In practice, RSPA does not anticipate that companies will extensively choose different flammable/combustible descriptions for domestic shipments. Some initial confusion will ensue as a result of allowing the option, but over the two-year transition period (to October 1, 1993) provided for conversion to the new hazard communication and classification system, carrier personnel, emergency responders, enforcement personnel and others are expected to adapt to the new system.

RSPA is revising paragraphs (b)(1) and (b)(2), defining combustible liquid and offering the reclassification option, by adding the phrase, "* * * that does not meet the definition of any other hazard class, except Class 9." Confusion still exists when a combustible liquid is also a hazardous substance or waste which, under Docket HM-181, are classed as Class 9 materials. The revisions to (b)(1) and (b)(2) make it clear that a flammable liquid can be reclassified as a combustible liquid if it meets no other hazard class, except Class 9. However, according to the precedence of hazards ranking in § 173.2a(a)(9), combustible liquids are ranked over materials classed as Class 9. Therefore, a combustible liquid that is also a hazardous substance or hazardous waste is classified a combustible material and is authorized to be packaged in a strong, tight non-bulk or bulk packaging, subject to the requirements in § 173.150(f)(3).

RSPA also is revising the combustible liquid reclassification option provided in paragraph (b)(2) to state that this option does not apply to materials being offered for air or vessel transportation unless other means of transportation are impracticable (e.g., air service to remote areas inaccessible to highway or rail transport).

One petitioner asked RSPA to delete or more fully justify the second test referred to in paragraph (c)(2) for determining the flash point of mixtures. This [second] test "is counterproductive," the petitioner asserted. "It is costly and time consuming to produce results which might not represent the material being shipped." Revisions to Class 3 testing methods were not proposed in Notice 87-4 and are beyond the scope of the final rule. However, RSPA may address changes in Class 3 test methods in a future rulemaking.

Section 173.124. One petitioner advised RSPA to delete the term "or toxic" from the definition in paragraph (c) of a Division 4.3 (Dangerous when wet) material because it is inconsistent with the definition in the UN Recommendations which refers only to the emission of "flammable gases" when a Division 4.3 material is in contact with water. However, RSPA considers the potential evolution of toxic gases as one of the properties of a Division 4.3 material; therefore, the definition in paragraph (c) is retained in the final rule. HMAC agreed that materials which meet the criteria of toxic gas "should be regulated in Division 4.3," and asked RSPA to petition the UN to include these materials in the UN Recommendations. Consequently, RSPA plans to make that proposal to the UN during the 1991-92 sessions of the Committee of Experts.

Section 173.128. Petitions requesting that 70 produced organic peroxides and formulations not yet tested for generic UN classification be listed separately for domestic shipment only, based on existing test data, are addressed in § 173.225.

Section 173.132. RSPA is adding a sentence to paragraph (a)(1) encouraging the use of test data reported in the chemical test literature as an alternative to conducting tests with laboratory animals whenever possible.

One petitioner asserted that the limit of inhalation toxicity for dusts and mists in paragraph (a)(1)(iii) of not more than 10 mg/L "is unrealistically high." The petitioner contended that "it is difficult to maintain a concentration of dust or mist over 1 mg/L" and recommended that the UN Committee of Experts establish "a lower, more practical concentration level of dusts and mists." RSPA agrees that a better standard

could be devised and encourages HMAC or individual companies to develop a protocol for presentation to the UN Subcommittee of Experts.

Section 173.133. RSPA revising paragraph (a)(2) to specifically address packing groups and hazard zone assignments for liquids based on the inhalation of vapors. Note 2 to the revised table of hazard zone and packing group assignments clarifies that a liquid classed in Division 6.1, meeting criteria for Packing Group I, Hazard Zones A or B in paragraph (a)(2), "is a material poisonous by inhalation" subject to additional hazard communication requirements in part 172. In other words, by definition in this section, a liquid material poisonous by inhalation is assigned Packing Group I, Hazard Zones A or B.

RSPA also is correcting Figure 1, which graphically displays packing group and hazard zone assignments for both Division 2.3 and 6.1 materials, by deleting Hazard Zones C and D applied to liquids. In paragraph (b)(1)(ii), RSPA is revising the definition for the partial pressure of the i/th component in the formula for estimating the volatility of components in poison mixtures. In the final rule, RSPA neglected to include the reference temperature and pressure of 20C and one atmosphere (atm) respectively.

Section 173.134. In a petition for reconsideration, the National Solid Wastes Management Association (NSWMA) recommended that RSPA revise the definition for infectious substances (etiologic agents) to exclude solid waste or medical waste as defined in 40 CFR 259.10 of the EPA's regulations. The petition was filed under the final rule for Docket HM–142A (56 FR 197, January 3, 1991). On February 22, 1991 (56 FR 7312), RSPA delayed the effective date of the final rule to September 30, 1991, to provide more time to evaluate the petition. In a meeting to obtain clarification of the petition, the NSWMA urged RSPA to reestablish the 50 ml exception for infectious wastes. The NSWMA stated that RSPA's approach to transporting medical waste was inconsistent with the approach taken by other Federal agencies, notably the EPA, and would significantly increase the cost of transporting medical waste for the regulated community, including not-for-profit and small business entities. The NSWMA stated that, contrary to RSPA's preamble discussion in Docket HM–142A that most infectious waste did not contain etiologic agents or was treated on-site to destroy the agent before being transported for disposal, substantial quantities of medical waste are transported off-site for treatment. In support of its statement, the NSWMA noted a statement in EPA's Medical Waste Management in the United States: Second Interim Report to Congress (December 5, 1990, page 34) that only 2 percent of the regulated medical waste shipped off-site (29,600 tons) during the first six months of the EPA's demonstration program was treated prior to shipment. EPA's regulations on medical waste in 40 CFR Part 259 applied in only five States and expired on June 22, 1991, with the end of a two-year demonstration program that EPA established to fulfill its mandate under the Medical Waste Tracking Act of 1988 (MWTA; P.L. 100–582). The MWTA has not been extended. RSPA agrees with the NSWMA that medical waste should be treated differently than most infectious substances.

Docket HM–142A established a definition and packaging provisions for infectious substances and was to serve as a transition to Docket HM–181. On September 18, 1991, RSPA incorporated HM–142A into HM–181 [56 FR 47158]. In addition, in partial response to the NSWMA's request, RSPA extended the 50 ml exception for cultures of infectious substances (etiologic agents), from October 1, 1991, to until October 1, 1992. RSPA anticipated this extension would provide enough time to fully respond to the NSWMA's comments in this correction document. However, after publication of the document in the **Federal Register**, the NSWMA submitted a September 26, 1991 letter asking that RSPA clarify by letter or interim rulemaking that the January 3, and September 18, 1991, final rules "apply to only isolated cultures or stocks such as clinical laboratory specimens and not to 'medical waste' as defined in 40 CFR 259.10(b), 'regulated medical waste' as defined in 40 CFR 259.30(a), and 'mixtures' as defined in 40 CFR 259.31." Because RSPA was unable to publish this correction document in time to respond to the petitioner's substantive concerns, RSPA issued another partial response [56 FR 49830, October 1, 1991] extending the compliance date for hazard communication and classification requirements for all infectious substances until October 1, 1992.

In this correction document, RSPA is revising the requirements pertaining to infectious substances to define and specify more appropriate requirements for regulated medical waste. The definition of a "regulated medical waste" added to appendix G to part 173 is essentially the same definition contained in the former EPA regulations in 40 CFR part 259 and is supported by industry in their recommended guidelines.

As defined in this final rule, "regulated medical waste" includes cultures and stocks of infectious agents, pathological wastes such as human tissues and organs, human blood and blood products, sharps (e.g., discarded hypodermic needles, suture needles, scalpel blades, and blood vials), animal waste such as contaminated carcasses, and biological or contaminated materials from humans and animals.

Since the majority of these wastes are untreated and, thus, may potentially contain infectious substances, RSPA strongly believes that the public and transport personnel be protected from the hazards of these materials during transportation. The packaging requirements for these wastes are consistent with those contained in the former EPA regulations and are used in some States. For a discussion on these requirements, refer to preamble discussion to § 173.197.

After October 1, 1992, shipments of these materials must be accompanied by shipping papers. The packages must be marked "Regulated medical waste" and with the identification number "NA 9275" in accordance with § 172.301, and have affixed the INFECTIOUS SUBSTANCE label prescribed in § 172.432.

Section 173.136. Two petitioners noted that RSPA uses the existing definition of a corrosive material in § 173.240 to define a Class 8 material in paragraph (a), but uses the UN definition of a Class 8 material throughout § 173.137 for assignment of Class 8 packing groups. RSPA currently defines a corrosive material as causing "visible destruction or irreversible alterations in human skin tissues." The UN defines Class 8 material as causing "visible necrosis of the skin tissue." RSPA was asked to apply consistent criterion for Class 8 in both sections. RSPA agrees and is revising both sections to use the existing language of "visible destruction or irreversible alterations . . ." throughout.

HMAC requested a clarification of whether solid materials are addressed in both §§ 173.136 and 173.137, noting that the term "liquids" is used in § 173.136(a)(2) and "substances" is used in § 173.137(c) which implies both liquid and solid materials. Metal corrosion applies only to liquids. The use of the term "substances" in § 173.137(c) is correct because, in these sections, "corrosive material" covers both liquid and solid states.

Section 173.137. A petitioner claimed that under this section, up to three times as many animals could be required in the test specified in this section to determine an appropriate packing group. The petitioner referred to existing requirements (in Appendix A to part 173, paragraph 8) for a "go-no go" test for corrosivity based on a protocol using six test animals. "Since testing (under Docket HM–181) is no longer a 'go-no go' test, it will be harder . . . to not only classify but determine the Packing Groups of similar materials." The petitioner is correct, but under Docket HM–181 no alternative protocol was proposed for Class 8 materials. However, the UN is expected to review this issue in the 1991–92 sessions of the Committee of Experts.

Section 173.140. For clarification, RSPA accepts HMAC's petition to revise the definition of a Class 9 material in paragraph (a) to read, ". . . a material which presents a hazard during transportation, but which does not meet the definition of any other hazard class."

Section 173.150. Asserting that most Division 6.1 Packing Group III materials were previously unregulated, a petitioner requested that RSPA allow Class 3 materials that also meet Division 6.1 Packing Group III criteria to be transported under the limited quantity provisions in paragraphs (b) and (c). This petition is not accepted because RSPA intended to exclude all materials exhibiting subsidiary hazards from qualifying for the limited quantity provisions in this section—except Class 9 materials. RSPA believes there is no justification for singling out the Division 6.1 Packing Group III category for the Class 3 exception. Furthermore, in the final rule, RSPA is imposing more stringent hazard communication and packaging requirements for all poisonous liquids.

Several petitioners, including HMAC, advised RSPA to delete paragraph (f)(1), claiming that the combustible liquid exception in § 173.120(b)(2) and (f)(1) is inconsistent with RSPA's objective to align U.S. rules with UN Recommendations. They said the exception will create a dual classification system and promote inconsistencies between product information sources. For reasons stated above regarding petitions to reconsider § 173.120(b) (1) and (2), RSPA has determined not to delete the domestic combustible liquid exception. AAR points out that § 173.120(b)(2) permits a liquid with a flash point above 100F to be reclassified a combustible liquid if it meets the definition of no other hazard class. But when this reclassification is restated in paragraph (f), no reference is made to other hazard classes. Accordingly, paragraph (f)(1) is revised by adding the phrase "* * * that meets no other hazard class except Class 9."

Three petitioners asked RSPA to delete paragraph (f)(4)(iii) stating that the combustible liquid exception does not apply to materials offered for transportation at a temperature at or above its flash point. They asserted that this provision, addressed in HM–198A, is beyond the scope of the final rule. However, RSPA is maintaining paragraph (f)(4)(iii) because materials shipped in this manner can produce vapors presenting a hazardous ignition source, and must therefore be regulated.

Section 173.152. Two petitioners suggested revising paragraph (b)(1) to provide a 10–pound exception for domestic shipments of Packing Group II oxidizers in strong outer packagings. The petitioners cite two basic products that have been shipped for years in small containers (10 pounds or less) without incident. They say there is no evidence that 2.2–pound shipments provide a greater level of safety than 10–pound shipments. However, a 10–pound exception was not considered under Docket HM–181 and is beyond the scope of the final rule.

Section 173.153. COSTHA urged RSPA to broaden Division 6.1 exceptions to include PG II poison materials and to provide a POISON or KEEP AWAY FROM FOOD labeling exception for combination packagings meeting the selective testing criteria for the so-called "Superpack" in § 178.601(g)(2). In effect, this would retain hazard communication exceptions in COSTHA's current "Poison Pack" exemptions. COSTHA asserted that the absence of a Division 6.1 labeling exception seriously obstructs the domestic distribution of poison materials. Highway carriers, including fast freight and parcel delivery services, refuse to accept packages bearing POISON or KEEP AWAY FROM FOOD labels. Shippers thus experience shipping delays and large surcharges for special pickup service by common carriers of small volume shipments.

RSPA declines to generically expand the exception provided in paragraph (b) to Division 6.1 Packing Group II materials because the objective in the final rule is to fully regulate these materials, especially when shipped with foodstuffs. RSPA points out that there is no basis in existing regulations to grant a labeling exception to Division 6.1 Packing Group II materials. In the existing HMR, poison B liquids, equivalent in degree of hazard to Packing Group II poisons, are subject to labeling requirements. COSTHA's proposal also is inconsistent with UN recommendations and ICAO requirements. In section 6.7, the UN recommends that substances "marked or known to be poison in Packing Groups I, II, III should not be carried in the same * * * conveyances with substances marked or known to be foodstuffs * * *." ICAO requires the POISON label for PG I and II poison liquids and solids and the KEEP AWAY FROM FOOD label for PG III poison liquids and solids. Therefore, labeling exceptions for Division 6.1 Packing Group II poisons will continue to be subject to the exemption process.

Section 173.154. Paragraph (d) is revised to correspond with the existing § 173.245(b). It states that Class 8, Packing Group III materials that are only corrosive to aluminum or steel are excepted from the HMR "when transported by rail or highway in portable tanks, cargo tanks and tank cars constructed of materials that will not react dangerously or be degraded by the corrosive material."

Section 173.155. RSPA is revising paragraph (b) to add a labeling exception to the exceptions provided for limited quantities of miscellaneous materials in Class 9. The labeling exception was inadvertently omitted in the final rule.

Section 173.156. RSPA accepts two petitions requesting removal of the 30 kilogram (66 pound) package gross weight limitation pertaining to limited quantity packaging when applied to domestic-only shipments of ORM-D materials. This would allow ORM-D materials now commonly shipped in stretched-wrapped floor display stands or wire bound shrouded pallets exceeding 30 kg gross weight to continue to be transported that way. Paragraph (b) thus is revised to remove the package weight restriction if ORM-D materials are shipped by a private or contract motor carrier—or by a common carrier vehicle under exclusive use for such service—from a distribution center to a retail outlet.

5. Subpart E: Non-bulk Packaging for *Hazardous Materials Other Than Class 1 and Class 7*

Section 173.158. Responding to a petitioner's request, RSPA is authorizing a combination packaging with a 4G fiberboard outer packaging for nitric acid of 80 percent or greater concentration. This is consistent with the IMDG Code which allows a 4G outer packaging for all concentrations of nitric acid.

Section 173.164. A petitioner asked RSPA to revise paragraph (b)(1) to be consistent with Packing Instruction 805 of the ICAO Technical Instructions for manufactured articles containing mercury. This revision would maintain a current exemption excepting mercury shipped in articles from regulation under certain conditions. The petitioner claimed that, "to date, we are not aware of any loss of contents during transportation in connection with this exemption." RSPA accepts this petition and is adding a new paragraph (b)(2) excepting from the requirements of this subchapter, "thermometers, switches and relays, each containing a total quantity of not more that 15 grams of mercury if they are installed as an integral part of a machine or apparatus and so fitted that shock or impact damage" leading to a leakage of mercury is unlikely to occur.

Section 173.173. The National Paint and Coatings Association, HMAC and other petitioners reasserted positions taken in comments to Docket HM-181, urging DOT to except five-gallon DOT Specification 37 open head pails from Subpart M testing. They claimed that the extensively used open-head five-gallon Specification 37 pail cannot pass the Packing Group II drop test, forcing them to use the substantially more expensive Specification 17H packaging that can pass the test. One petitioner recommended a new paragraph (c) authorizing metal drums not over 20 liters and capable of passing Packing Group II tests with solids for Packing Group II or III paint and paint related materials.

Other than citing cost impact, petitioners offered no justification stating why they cannot use packagings capable of meeting the minimum performance levels specified in parts 173 and 178. A number of incidents involving failure of open head five-gallon steel containers have been reported to RSPA. For example, HMIS data shows that between January 1, 1986 and January 1, 1991, 210 five-gallon Specification 37A containers failed during loading/unloading operations or in transportation, many involving shipments of paint and paint related materials. Incidents included failures of welds and seams, closures and basic packaging material. As stated in the preamble, RSPA believes the five-year transition (to October 1, 1996) provided for conversion to UN performance standards gives the paint industry ample time to develop cost-effective packaging capable of passing subpart M tests. Addressing another issue, RSPA is revising paragraph (a) to include "drying" compound among the substances included in the definition of "Paint related material."

Section 173.181. Several petitioners requested revisions to paragraph (c) to liberalize packaging authorizations for pyrophoric materials. Consistent with long-standing shipping practices, another petitioner suggested revisions to paragraph (c) authorizing glass inner bottles in strong tight, firmly cushioned metal cans further packed in fiber drums. Accordingly, paragraph (c) is revised to read, "Steel drums (1A2) or fiber drums (1G) * * * with inner strong tight metal cans * * *." One petitioner recommended that RSPA eliminate references to certain types of metal construction or material thicknesses for inner packagings, for example, specifying metal inner cans constructed of "electrocoated tin plate material not less than 0.015 inch thick," or requiring "tin plate" instead of "metal" separators between each layer of inner containers. RSPA agrees and is revising paragraphs (c) and (c)(3) to remove those specific references.

Section 173.185. The exemption (DOT E-7052) authorizing the shipment of lithium batteries is incorporated into this section and will be terminated on September 30, 1993. Rechargeable lithium batteries and devices or equipment containing lithium batteries may continue to be offered under the terms of the exemption. However, those rechargeable lithium batteries and devices or equipment containing lithium batteries not acknowledged in writing by the Office of Exemptions and Approvals by September 1, 1991 must be approved and shipped in accordance with the requirements in this section. In addition, the devices and equipment containing lithium batteries and rechargeable lithium batteries being shipped under DOT E-7052 must be reidentified in accordance with this section by September 30, 1993.

Consistent with ICAO classification, paragraph (a) is revised to include shipments of "lithium batteries and cells contained in equipment" as requiring approval by the Associate Administrator for Hazardous Materials Safety. RSPA also accepts a petitioner's request to add a new paragraph (k) permitting lithium batteries or cells discharged to below 2 volts to be shipped for testing purposes by highway only. A petitioner's recommendation that RSPA except liquid cathode lithium batteries containing up to one gram of lithium or lithium alloy from regulation is beyond the scope of the final rule.

Section 173.188. Three petitioners, including the Chemical Manufacturers Association (CMA), requested a revision to paragraph (a)(2) permitting phosphorus to be shipped in closed head steel drums (1A1) with capacities of up to 250 liters (66 gallons) and open head steel drums (1A2) with capacities up to 115 liters (30 gallons). They said this would allow use of 55 gallon specification 17C and UN 1A1 drums now authorized in DOT E-7753 for phosphorus shipments. CMA's request also is aligned with CA-910236 permitting international shipments in UN 1A1 drums not exceeding 250 L capacity. RSPA accepts this petition and is revising paragraph (a)(2) accordingly.

Section 173.193. Four petitioners objected to the 250 pound cylinder size limit contained in paragraph (b) and urged RSPA to remove it. They claimed that the cylinder capacity limitation "is not necessary or justified" for these materials, especially for methyl bromide. Petitioners pointed out that requirements for methyl bromide in existing § 173.353 impose no cylinder capacity limit. They said the cylinder size limitation also is inconsistent with the approach RSPA has taken regarding materials poisonous by inhalation packaged in cylinders. Section 173.40 contains no cylinder capacity limits, nor do §§ 173.302, 173.304 and 173.305 for compressed or liquified gases in Hazard Zones A and B. RSPA agrees that the water capacity limit for cylinders should not apply to methyl bromide and is revising paragraph (b) to state that exception.

Citing a long-standing and safe shipping practice, one petitioner asked RSPA to continue to allow methyl bromide and chloropicrin mixtures to be shipped in small packages. Accordingly, RSPA is adding a new paragraph (c) authorizing combination packaging with inside metal cans containing not over 1¾ pounds each of methyl bromide mixtures with up to two percent chloropicrin.

Section 173.197. This section has been added to specify packaging requirements for medical waste. These requirements are effective on October 1, 1992. In paragraph (a), RSPA is providing for the use of packagings conforming to the requirements of part 178 of this Subchapter at the Packing Group II performance level. Paragraph (b) requires that the packagings be capable of passing the testing requirements contained in subpart M of part 178 but excepts the packagings from having to be marked or tested to the UN standards until October 1, 1994. Specifically, the regulations require the use of rigid, leakproof packagings that are impervious to moisture and of

sufficient strength to prevent tearing or bursting under normal conditions of use and handling. Packagings used for medical waste that are sharps (e.g., discarded hypodermic needles, suture needles, pasteur pipettes, scalpel blades, blood vials, culture dishes, and slides), and for fluids in quantities greater than 20 cubic centimeters must meet certain additional requirements. Requiring these packagings to be rigid will preclude the use of double bags not packed in a strong outer packaging. However, RSPA believes the use of rigid packagings offers a more adequate level of safety to the public and transport personnel. This action will provide uniform Federal regulation of regulated medical waste in transportation.

Sections 173.202, 173.203; 173.211 through 173.213. Ten petitioners asked RSPA to add single package authorizations to the generic non-bulk packaging sections for liquids and solids. Among them, the Fiber Drum Technical Council (FDTC) asserted that fiber drums lined with an assortment of plastic, mylar, nylon, polyethylene/oil and other lining materials, strengthened to pass at least the Packing Group II test with liquids, should be authorized domestically for Packing Group II and III liquids and Packing Group I solids. In its petition, FDTC referred to the "1G fiber drum with inner plastic liner" as defined in section 9.6.6.1. of the UN Recommendations. The "lined" 1G fiber drum is distinguished from the "6HG1 composite plastic receptacle with outer fiber drum" described in section 9.6.18 which is authorized internationally for most liquids and solids.

FDTC claimed that fiber drums constructed with linings impervious to various liquid ladings provide better barrier properties than plastic counterparts. They also show good stacking strength and perform better than other packagings in high humidity and temperature environments. FDTC contended there are fewer available polyethylene resin/hazardous material compatibility matches for plastic drums or steel drum coatings. Because single-trip fiber drums can be cost-effectively incinerated, FDTC said they also are a more environmentally acceptable choice of container.

RSPA recognizes that single fiber drums have not been viewed internationally as suitable for transporting liquid hazardous materials because of the high water absorption properties of fiber packaging materials. ICAO and the IMDG Code prohibit use of fiber drums, with or without lining, for corrosive, flammable or poisonous liquids. Under ICAO, fiber drums cannot be used for Packing Group I corrosive or flammable solids, but the lined drum can be used for Packing Group I poison solids. The IMDG Code allows use of the 1G for Packing Group I poison, corrosive and Packing Group II flammable solids.

Based on the extensive, safe domestic use of this packaging for low hazard materials, RSPA believes that lined fiber drums capable of passing at least the Packing Group II performance tests with liquids should be generically authorized for those materials. Special Provision N37 in § 172.102 already authorizes integrally lined fiber drums for such materials as "Compound, cleaning liquid, n.o.s. Packing Group II and III." Consequently, paragraphs (c) in §§ 173.202 and 173.203 are revised to include the lined fiber drum 1G. RSPA also is revising § 173.211(c) to authorize the unlined fiber drum 1G for Packing Group I solids.

A number of petitioners urged RSPA to authorize the 5M1 multiwall paper bag for all hazardous solids in §§ 173.211, 173.212 and 173.213. The Chemical Packaging Committee of the Institute of Packaging Professionals (CPC) noted that existing § 173.365 authorizes the DOT Specification 44D multiwall paper bag for Poison B solids and that bags meeting the 5M1 standard have been successfully used for other solids under various exemptions. COSTHA said that many solids for which packaging in §§ 173.212 and 173.213 is authorized were previously authorized for transport in non-specification packagings, "particularly those in Packing Group III of Division 6.1 and Class 8." COSTHA contended that "safety will not be compromised by authorizing the 5M1 for these materials, provided the bag meets part 178 requirements." HMAC and other petitioners asked RSPA to revise § 173.211(c) to include the water-resistant multiwall paper bag 5M2 for Packing Group I solids.

RSPA notes that the water-resistant 5M2 multiwall bag has gained limited international acceptance. It is authorized by the IMDG Code only for Packing Group II and III Division 6.1 solids. Based on sufficient history of safe shipping, RSPA is authorizing the 5M2 as a domestic exception for all Packing Group II and III solids. However, it has not been adequately demonstrated that multiwall bags which are not water resistant can offer enough protection against moisture leaching in or out of bags containing hazardous solids. RSPA believes the five-year transition period for conversion of most packagings to the performance-based system offers enough time for the industry to improve bag technology. At that time, companies may wish to petition RSPA for a rulemaking with sufficient data to prove a multiwall paper bag 5M1 is an appropriate packaging for hazardous solids.

Section 173.204. Several petitioners asserted that requiring performance-tested packaging for materials previously shipped in non-specification packages is unnecessary and will drive up shipping costs. HMAC and NSWMA both claimed that RSPA has significantly increased packaging requirements for hazardous substances and wastes "when there has been no established history of package failure under current standards" allowing use of strong, tight packaging for substances and wastes meeting no other hazard class. FDTC said that "any packaging suitable for the containment of wastes until disposal should be adequate, especially since the law is clear concerning spills and cleanup." Petitioners suggested that assigning non-specification packaging for these materials under § 173.204 "would maintain today's proven practices," keeping in mind that shippers are still obligated under § 173.24 to offer structurally sound packages for transportation.

FDTC also petitioned RSPA to allow materials now regulated under § 173.249a to continue to be shipped in non-specification packaging. The Council said the non-specification fiber drum now used for cleaning and textile treatment compound liquids, dye intermediates and mining reagents meets National Motor Freight Classification provisions (Item 296), which includes a one-foot drop test, but that this packaging does not pass the 9.9 foot Packing Group II test required for UN certification. FDTC claimed that, over the past 20 years, more than seven million of these drums, valued at over $88 million, have been used safely. "Required use of the 6HG1 plastic-lined fiber composite for many of these materials would result in a $10 per drum or a 60% overall cost increase."

One of RSPA's overall objectives in the final rule has been to improve transportation safety by upgrading package integrity for a number of materials, including hazardous substances and wastes, previously shipped in non-specification packaging. This especially applies to hazardous wastes which too often have been shipped in substandard packagings from waste sites to disposal facilities. Therefore, consistent with international standards, and with certain exceptions

for waste materials (See § 173.12). RSPA is requiring environmentally hazardous substances and wastes classed in Class 9 to be shipped in packagings meeting at least the Packing Group III performance level.

RSPA is employing the same approach to materials previously regulated under § 173.249a, many of which are consolidated under the "Corrosive liquids, n.o.s." entry and assigned at least Packing Group III packaging. There are very few cases in the final rule where non-specification packaging under § 173.204 is provided, and no provisions are made for non-specification fiber drums. RSPA never intended to except domestically-used fiber drums from the performance standards it adopted. When authorized for use under the UN system, fiber drums must comply with the 1G standard (§ 178.508) and pass the appropriate tests for materials they are intended to contain.

Section 173.224. In response to a petition, RSPA is revising the "Packing Methods for Self-Reacting Materials" chart in paragraph (c) to include "Fiber drum 1G, siff proof" in the "outer packaging" column for the "F5b" entry.

Section 173.225. Several petitioners, including the Organic Peroxides Producers Safety Division (OPPSD) of the Society of the Plastics Industry, urged RSPA to revise paragraph (b) and assign generic UN classifications to 70 unlisted domestically produced organic peroxides and formulations on the basis of limited test data. OPPSD said these materials are transported either under the existing "Organic peroxide, liquid or solution, n.o.s." shipping description or have been tested by the Bureau of Explosives and found to present no hazard. OPPSD added that these 70 products "have been shipped domestically without incident for years." One petitioner asked, "why should many 'old', unlisted, uniquely American organic peroxides and formulations be subject to the battery of UN classification tests prior to DOT approval for transport because there is no provision for them in the European (UN) listing DOT is adopting?" One petitioner added that the generic classification procedure in § 173.128(c) "is potentially burdensome, going far beyond the current process for classifying these materials."

RSPA invested considerable resources over the past five years working with the UN to develop the entire generic organic peroxide classification system and the list presented in the Organic Peroxides Table in paragraph (b). This list was developed from test data provided to the UN working group, including data for many entries from U.S. companies. RSPA continually urged producers, through OPPSD, to check the developing list for new entries, but the response was not positive. As a result, many of the so-called "old" products were not included in the paragraph (b) table. RSPA notes that many organic peroxide compounds and formulations listed specifically by name in the UN table prior to the Sixth edition of the UN Recommendations include U.S.-developed products, not just European products. To address the problem of classifying unlisted products, RSPA suggests that organic peroxides producers submit test data for review and assignment to the appropriate generic types described in § 173.128(b). Producers are encouraged to recommend a more effective mechanism by which a broad range of new formulations can be tested and classed. RSPA believes that over the two-year transition period for conversion to the UN classification system that "old" and new products can be effectively tested and classified.

Responding to a request by OPPSD, RSPA is making a number of editorial changes to the Organic Peroxides Table in paragraph (b), the table of Packagings for Liquid Organic Peroxides in paragraph (d)(1) and the table of Packagings for Solid Organic Peroxides in paragraph (d)(2) for better alignment with UN Recommendations. RSPA also is correcting paragraph (e)(4)(i) by removing the phrase "Type C" and inserting "Type B". Thus, samples of untested new organic peroxides or new formulations may be assigned to the generic Type C classification "if the materials pose a level of hazard no greater than that of a Type B organic peroxide."

Two petitioners asked RSPA to revise paragraphs (e)(2) and (e)(3) to permit use of bottom outlets on cargo tanks and portable tanks containing organic peroxides. They asserted that transportation safety would be improved by allowing tanks with bottom outlets. The petitioners claimed that "use of bottom outlets will also facilitate complete unloading of the product with only minimal cleaning." RSPA notes that organic peroxides are assigned to bulk packaging on a case-by-case basis and believes that use of bottom outlets for these materials in portable and cargo tanks cannot be generically established without a thorough safety analysis. However, this issue may be addressed in a future rulemaking if it is based on a sufficient safety analysis.

Section 173.226. Numerous petitions were submitted suggesting changes to §§ 173.226 and 173.227 for the non-bulk packaging of materials poisonous by inhalation, including revised inner and outer package minimum thicknesses, a lower hydrostatic pressure standard for outer drums, a more flexible inner drum closure provision and expanded use of authorized single packaging in dedicated distribution systems. Two petitioners asked RSPA to authorize 16 gauge 1A2 or 1H2 outer packagings meeting Packing Group II performance standards. However, no test or cost data were advanced to support this revision. RSPA accepts several petitions to authorize 16 gauge minimum thickness (0.054 inch) for 1A1 and 1N1 inner packagings over 32 gallons capacity, provided these inner packagings are capable of meeting higher drop test heights or are rated to carry materials of higher specific gravity.

HMAC, CPC and other petitioners urged RSPA to clarify that the 250 kPa (36 psi) hydrostatic test required in § 178.605(d)(3) for Packing Group I liquids does not apply to the outer drum. They claimed that no commercially available open head drum can withstand this test. RSPA agrees that a lower hydrostatic test pressure for open head outer drums is acceptable given that the primary functions of the outer drum are to provide puncture and impact protection to the inner packaging and to contain any poisonous by inhalation hazard material accidentally released from the inner packaging. Therefore, RSPA is revising paragraph (b) to require 1A2 and 1H2 outer drums to withstand the hydrostatic test pressure of 100 kPa (15 psi) specified in § 178.605(d)(1) for Packing Group II liquids. The 550 kPa (80 psi) hydrostatic test pressure specified in paragraph (b)(1) for inner packagings is retained.

Several petitioners recommended revised minimum separation distances between inner and outer drums for the double drum configurations authorized in §§ 173.226 and 173.227. They suggested a "minimum separation of 2.5 cm (1 inch) around the body of the inner drum and at least 2.5 cm on the top and bottom and between inner and outer drums." CMA and other petitioners claimed that, for many years, shippers have successfully used 85-gallon salvage drums with 2.5 cm clearances on sides, top and bottom. "This revision will permit continued use of readily available salvage drums and prevent an unneeded expense in producing and stocking a new drum of larger capacity for a limited number of products." However, no test data has been offered to support this petition. The drum separation requirements in paragraph (b)(5) were not arbitrarily drawn for the final rule. They follow RSPA's 1986

"Guidelines for Packaging Liquids Toxic by Inhalation" and are contained in numerous approvals granted under Docket HM–196.

A petitioner suggested deletion of the requirement in paragraph (c)(2) that inner packagings must have "screw-type" closures. The petitioner contended that there are "better, safer and more effective closures" than the screw-type device required in paragraph (c). RSPA agrees that any closure held in place "by any means capable of preventing back-off or loosening of the closure" is sufficient. Therefore, paragraph (c)(2) is revised by removing the phrase "screw-type closure." This revision also aligns paragraph (c) with section 9.6.2.4 of the UN Recommendations stating that any closure "should be so designed and applied that they will remain secure and leakproof under normal conditions of transport" without specifying a certain type of closure.

Petitions asking RSPA to extend the authorized use of single packagings in dedicated transportation for lower hazard poisonous by inhalation materials (§ 173.227(c)) to Hazard Zone A or B materials are declined because they contravene RSPA's intent in the final rule to impose extraordinary measures to prevent leaks and dispersion of these materials to the atmosphere. Thus, for Hazard Zone A and B materials, the basic double-drum configuration is maintained for all non-bulk transportation.

Section 173.227. Four petitioners requested a revision of paragraph (b) to authorize either 18 gauge 1A2 and 1H2 outer packagings meeting the Packing Group II performance level or a 18 gauge salvage drum equivalent. Other petitioners suggested revising paragraph (b) to allow a 1H2 drum or a 6HA1 composite drum further packed in a 1A2 or 1H2 drum and revising paragraph (b)(3) to add the 1N1 drum to the list of authorized inner packagings. However, no test data was provided to justify taking these actions.

In response to petitioner requests, for reasons given above, RSPA is revising paragraph (b)(1) to require 1A1, 1H2 and 6HA1 outer packagings to withstand the hydrostatic test pressure of 100 kPa specified in § 178.605(d)(1) for Packing Group II liquids.

CMA suggested that RSPA remove either paragraph (b)(2)(ii) requiring a closure to be held in place to prevent backing off, or (b)(2)(iii) requiring a closure to be secured by a cap seal. CMA claimed that requiring a closure that employs both back off protection and a cap seal capable of withstanding 100 kPa would be "a major stumbling block in compliance. There is no current design that would permit installation of back off protection without compromising the cap seal requirement." CMA urges RSPA to require one or the other until a proven combination has been designed and field tested. This petition is not accepted. Two closure manufacturers have indicated to RSPA that paragraph (b)(2) requirements do not constitute serious design problems and can satisfactorily be complied with. Furthermore, specified back off protection and a cap seal capable of withstanding 100 kPa are contained in RSPA's 1986 "Guidelines for Packaging Liquids Toxic by Inhalation" and are incorporated in numerous HM–196 approvals.

A number of petitioners asked RSPA to revise paragraph (c) by adding the 1H1 closed head plastic drum as a single packaging in dedicated transport. They said adding the 1H1 would liberalize the use of plastic single packagings holding prior HM–196 approval—and in cases where poison materials also are corrosive to steel. CMA also cites "satisfactory shipping history of 1H1 plastic drums of phosphorus oxychloride, as well as the favorable experience gained under HM–196 for other products. It is believed that this omission is an error." However, no test data has been offered to show that the 1H1 as a single packaging meets a sufficiently high level of integrity to be authorized for materials poisonous by inhalation, thus these petitions are not accepted. RSPA would consider a petition for rulemaking on this issue based on adequate test data.

6. Subpart F: Bulk Packaging for Hazardous Materials Other Than Class 1 and Class 7

Section 173.240. RSPA is removing the authorizations for AAR Class 203W, 206W and 211W tank car tanks from paragraph (a) because non-specification tanks already are permitted. Several petitioners asked RSPA to revise paragraphs (a) and (b) to refer to a definition of "sift-proof" in § 171.8 as applied to "sift-proof closed rail cars" and "sift-proof closed vehicles." They suggested that the definition include a "tarpaulin-covered open-type vehicle" for ammonium nitrate fertilizers. Petitioners also urged RSPA to maintain existing § 173.182(b)(2) permitting the use of "sift-proof closed or open type motor vehicles" for transporting ammonium nitrate fertilizers. They contended that elimination of § 173.182(b)(2) "would have a serious effect on the explosives and agricultural industries."

When applied to a closed rail car or vehicle, RSPA believes that the term "sift-proof" already is adequately defined under the "no identifiable release" provision in § 173.24(b)(1). It is also RSPA's opinion that tarpaulin-covered open vehicles meet the definition of "closed vehicles." A request to authorize the use of sift-proof bulk bags for solid environmentally hazardous substances is considered beyond the scope of the final rule.

RSPA is not accepting one petitioner's request to revise paragraph (c) to refer to a broader range of "closed bulk packagings" by deleting references to "closed bins." References to "closed bulk packages" in this section, implying inclusion of IBCs and bulk bags, are considered beyond the scope of the final rule.

A number of petitioners, including HMAC, asked RSPA to align §§ 173.240 through 173.244 with the IMDG Code by authorizing IMO type 1, 2 and 5 portable tanks because they believe these tanks offer containment equivalent to DOT's specification IM 101, IM 102 and DOT 51 portable tanks respectively.

Two petitioners asked RSPA to add authorizations for IM–101 and IM–102 portable tanks in § 173.242, authorize the IM–101 in § 173.243 and authorize the IM–101, qualified by T-notes, in § 173.244. Another petitioner said that RSPA granted interim approval to ship molten cyanuric chloride, classed as "Corrosive liquid, poisonous, n.o.s.", in IM 101 portable tanks. The petitioner pointed out that the IMDG Code also authorizes corrosive liquids posing a poisonous subsidiary hazard to be shipped in IMO type 1 tanks.

Except as limited by special provisions in Column 7 of the § 172.101 Table, these tanks already are authorized in §§ 173.240(c) and 173.241(c) because non-specification portable tanks are permitted by these sections to be used for the transport of lesser hazard materials. For clarification, RSPA is revising paragraph (c) in both §§ 173.240 and 173.241 to specifically authorize IM type 1, 2 and 5 and IM 101 and IM 102 portable tanks. However, requests that IMO types 1, 2, and 5 and IM 101 and IM 102 portable tanks be authorized in §§ 173.242 through 173.244 are not accepted. RSPA believes there is not sufficient justification for creating a new packaging scheme for higher hazard materials based solely on IMO recommendations.

Section 173.241. RSPA is removing the special requirements in paragraph (c) for the generic authorization of DOT 57 portable tanks in this section because

they are inappropriate for this level of hazard.

Section 173.242. For regulatory consistency, RSPA is moving references to DOT Specification 111A100W4 and 111J100W4 tank cars, and Class DOT 103, 104 and 111 tank car tanks in paragraph (a) in §§ 173.242 and 173.243 to the generic section for the qualification, maintenance and use of tank cars (§ 173.31).

Sections 173.243. A petitioner recommended that RSPA remove the requirement in paragraph (a) for gauging devices on Class DOT 103, 104 and 111 tank cars. The petitioner explained that he operates a fleet of 100 insulated DOT–111A100W tank cars built for acrylonitrile service. These cars have no bottom outlets and contain no gauging devices to measure outage through open manways. The petitioner stated, "we feel our operation not only eliminates the need for gauging devices, it is also a safer operation, eliminating a potential leak area." RSPA accepts this petition and paragraph (a) is revised accordingly. Paragraph (b)(2) is revised to remove the authorization for the DOT 406 cargo tank because it is inappropriate for this level of hazard.

Sections 173.243 and 173.244. RSPA is revising paragraph (a) in these sections to properly describe authorized tank car tanks as being "fusion welded" and not "riveted." Therefore, references to "fusion welded" are inserted and references to "riveted tank car tanks" are removed.

Section 173.244. In response to several petitions, RSPA is allowing the use of MC 312 and MC 412 cargo tank motor vehicles subject to the conditions and limitations specified in special provisions B30 and B32. This is in response to several petitioners who argued that heavy walled MC 312 and DOT 412 cargo tanks provide an acceptable level of safety for materials poisonous by inhalation.

Section 173.245. For regulatory consistency, RSPA is adding authorization of tank car tanks and multi-unit tank car tanks when approved by the Associate Administrator for Hazardous Materials Safety.

7. Subpart G: Gases, Preparation and Packagings

Sections 173.302 and 173.304. Under the Docket HM–181 final rule, Column 8B of the § 172.101 Table authorized packagings in §§ 173.302 and 173.304 for various gases which had been reclassified as Division 2.3 materials. However, neither of these two sections was revised in the Docket HM–181 final rule to remove the prohibition against the use of these packagings for poisonous gases. By removing the phrase "or poisonous gas" in these two sections, as appropriate, a Division 2.3 material which is authorized to be packaged in a packaging listed in §§ 173.302 and 173.304 may be so packaged.

Section 173.306. Although not proposed in Docket HM–181, RSPA agrees with COSTHA's petition to add a definition of "flammable aerosol" in the final rule. COSTHA proposed that the definition be added to the defining criteria in § 173.115, but RSPA believes it more appropriately belongs in this section. Accordingly, paragraph (i) is added, incorporating the definition of flammable compressed gas in § 173.300(b)(2), (3) and (4). For consistency, RSPA is revising the limited quantities specified in paragraphs (a)(3)(i) and (b)(1) for metal aerosol containers and foodstuffs and soaps in non-refillable containers as follows; "* * * not exceeding 50 cubic inches capacity (1 liter) * * *." In addition, § 173.306 has been revised to allow Division 6.1 Packing Group III materials to be shipped in accordance with the authorized packagings of this section.

Sections 173.314 and 173.315. These sections are revised in order to clarify the packaging requirements for material poisonous by inhalation. The requirements previously found in § 173.244 and the special provisions for bulk packagings (i.e., B notes) have been moved to these sections. In § 173.315, there are now 4 generic entries for Division 2.3 materials—one corresponding to each hazard zone—and generic entries for Divisions 2.1 and 2.2, which were previously located in § 173.315(a)(2).

Section 173.314. RSPA is revising the table in paragraph (c) amending tank car authorizations for Division 2.3 materials for consistency with special provisions in § 172.102. Several notes to the table are revised by deleting several obsolete provisions. Other notes are edited for clarity. Note 25 to the table is removed as unnecessary since the quantity limitations aboard an aircraft would be exceeded for these packages. Note 16 is removed since it is no longer referenced. Entries for "nitrogen dioxide, liquified" and "ethylene oxide" are added. A fourth column is added captioned "notes". Paragraph (g) is amended by adding a new paragraph (3) referencing additional tank requirements.

HMAC suggested that RSPA revise the paragraph (c) table to include all compressed gases by name, including n.o.s. categories, and to identify notes to the table as appropriate. RSPA developed generic compressed gas entries to cover over 100 materials specifically named in § 172.101, and will retain the generic entries in the final rule. However, some specific compressed gases are listed in the paragraph (c) table because they present hazards requiring added levels of protection.

One petitioner recommended that RSPA remove Note 30 from the entry for "hydrogen chloride" and revise Special Provision B86 to require that new refrigerated liquid tank cars intended to contain this material be equipped with full head shields. The requirement of full head shields for a broader range of hazardous materials in tank cars is being addressed under Docket HM–175A and thus is beyond the scope of the final rule.

Section 173.323. RSPA is accepting a petition recommending removal of the requirement that all copper alloys in package construction material used to contain ethylene oxide be prohibited from contacting the lading, and is revising paragraph (a) accordingly. The petitioner pointed out that ethylene oxide packaging equipped with brass valves has been used for years under DOT E–9047 without incident. Responding to another petition, RSPA is correcting paragraph (b)(1) to authorize ethylene oxide in 4G fiberboard boxes with inner glass ampules or vials up to a total per package weight of 100 grams (3.5 ounces). RSPA also is revising paragraph (b)(4) to incorporate the existing § 173.124(a)(2) authorizing ethylene oxide to be shipped in cylinders over one gallon and five gallon capacities equipped with pressurizing valves and insulation. The five-gallon cylinder must be equipped with eductor tubes.

The Ethylene Oxide Industry Association (EOI) suggested revising paragraph (b)(5) to authorize ethylene oxide in 1A1 drums meeting the Packing Group III performance standard because that performance level equates to a Division 2.3 Hazard Zone D hazard level. However, this comparison is irrelevant given that only Packing Group I standards apply to the packaging of liquid materials poisonous by inhalation. EOI said reference in paragraph (b)(5) to a drum meeting the Packing Group I performance standard "is inconsistent" with poison gases being evaluated on a hazard zone basis. EOI added that the drum authorized in paragraph (b)(5) essentially is derived from the existing § 173.124 authorizing a DOT Specification 5P drum required to pass a Packing Group II drop test of four feet.

In the final rule, assignment of hazardous materials to non-bulk

packagings is based on the packing group system which relates the hazard level of materials to be packaged with the appropriate performance level of the packagings. Non-bulk packaging for all materials poisonous by inhalation, including ethylene oxide classified as a Division 2.3 Hazard Zone C poison gas, has been substantially upgraded in the final rule. Consistent with the generic packaging requirements for Hazard Zone C poison gases in § 173.227, the inner package primarily containing ethylene oxide must be capable of meeting the Packing Group I performance level.

Part 174: Carriage by Rail

Section 174.25. AAR noted that the table in § 174.25(a)(2) does not contain placard notations for Division 6.1 PG III and Class 9 materials, even though rail cars transporting these materials must be placarded. AAR suggested that shipping papers for all placarded rail cars should contain an appropriate placard notation to avoid confusion. RSPA agrees, and the table in paragraph (a)(2) is revised by adding an entry for Division 6.1 PG III materials, and revising the placard notation for Class 9 materials. AAR also recommended that there should be no placard endorsement residues of these materials should excepting tank cars containing a residue of a Division 6.1 PG III or a Class 9 material from the "DANGEROUS" placard endorsement.

Section 174.81. (See § 177.848 for discussion of segregation table issues.)

Section 174.82. AAR and other petitioners asked RSPA to revise paragraph (a), to except all Class 3, PG III materials (flash points between 23° C and 38° C) from required handling of placarded rail cars. AAR asserted that "there is no safety justification for imposing train placement restrictions (on these materials)." Since RSPA is adopting the UN classification system, which does not include a 38° C threshold, AAR suggested, "now is the logical time to exempt all flammable liquids with flash points above 23° C from train placement restrictions." These petitions are considered beyond the scope of Docket HM–181; however, train placement documentation is being addressed in a forthcoming rulemaking action under Docket HM–201A.

Part 176: Carriage by Vessel

Section 176.11. Several petitioners suggested that the reference to "171.12(b)" in § 176.11 was incorrect. Petitioners pointed out that this reference would not allow the shipment of bulk packagings in accordance with the IMDG Code in port areas, which is allowed in § 171.12(c). In the final rule, RSPA did not intend to forbid the movement of IMDG Code bulk packagings in port areas. Therefore, RSPA is amending the reference to § 171.12 by removing the direct reference to paragraph (b). This will allow shippers and carriers to determine which paragraphs of § 171.12 apply to their shipments.

The second sentence of paragraph (a) was intended to state that for Class 1 shipments made in accordance with the IMDG Code, the referenced sections in Part 176 do not apply. The present text is unclear. RSPA is clarifying this sentence by revising it to read, "The requirements of §§ 176.83, 176.84 and 176.112 through 174 are not applicable to shipments of Class 1 (explosive) materials made in accordance with the IMDG Code."

Section 176.76. One petitioner requested that the words containership and barge be added to § 176.76(b). RSPA disagrees. The definitions of trailership and carfloat, which are included in § 176.76(b), include barges. Therefore, RSPA sees no need to include barges in § 176.76(b). Containerships should not be added because they are specially equipped to carry containers, not vehicles. Vehicles should be carried only on vessels that are equipped to carry them. RSPA is denying this petitioner's request.

Section 176.170. Several petitioners requested that the limitation of 5,000 kilograms of Class 1 materials in freight containers of length greater than 6 m in § 176.170 be removed. It is RSPA's concern that freight containers of over 6 m in length could sag and then possibly fail without a proper weight limitation placed on that freight container. The limitation of 5,000 kg, which was developed in an international forum, is believed to be the maximum weight that these freight containers can hold without an unacceptable level of risk of the freight container failing. Therefore, these petitioners' request is denied. However, if a level of safety equivalent to that provided in § 176.170 can be provided, exemption applications submitted in accordance with 49 CFR 107.103 for greater than 5,000 kilograms will be reviewed on a case by case basis.

Section 176.415. RSPA is removing the reference to ammonium nitrate, Division 1.1D, UN0222, from § 176.415(c)(1)(2) and (5). This is being done because the permit requirements for Division 1.1 materials are found in § 176.400.

Part 177: Carriage by Public Highway

Section 177.848. A number of petitioners objected to revisions of the Segregation Table for Hazardous Materials in the final rule, asserting that they are more stringent than existing requirements in § 177.848 for highway and rail operations, and more stringent than requirements for vessel loading. Petitioners claimed that RSPA "failed to consider significant operational differences between the modes" and that revised requirements in §§ 174.81 and 177.848 "impose vast and unnecessary costs." COSTHA questioned the need to align rail and highway segregation requirements with those in the IMDG Code "since the majority of rail and highway shipments are not destined for eventual transport by vessel."

The United Parcel Service (UPS), the Air Transport Association (ATA) and other petitioners said the new segregation restrictions will interfere with long-standing local pickup and delivery operations, create shipment delays, increase the number of vehicles on the road and cause problems at distribution centers and warehouses which stock and ship a wide variety of goods. UPS noted that the required four-foot separation distance for the segregation of many materials indicated by the letter "O" in the table "complements standard palletized shipments, but ignores long-standing practices for loading small packaged materials." HMAC asserted that the new segregation requirements substantially increase the number of hazard classes to which loading restrictions apply.

Most petitioners urged RSPA to reestablish the existing segregation table in § 177.848 for rail and highway operations. The National Motor Freight Traffic Association, ATA and several carriers suggested that if RSPA retains the revised table, the four-foot separation requirement in paragraph (e)(3) should be deleted. Other petitioners recommended removal of the 10 cm minimum height requirement in paragraph (e)(5)(ii). One petitioner recommended that RSPA revise paragraph (e) to allow palletized loads with "O" and "B" segregation requirements to be transported together with a physical barrier such as a load bar, slip sheet or wooden dunnage between the adjacent materials. However, this proposal was never considered in Docket HM–181 and is beyond the scope of the final rule.

Revised segregation requirements in the final rule are intended to improve transportation safety by imposing appropriate controls over the way certain materials are loaded, especially gases and liquids poisonous by

inhalation. No distinction is made for materials poisonous by inhalation in the existing segregation table. RSPA adopted the segregation table format in section 15.1.16 of the IMDG Code, but not its content, as ATA contended. The IMDG Code employs different separation distances and storage requirements. The Code states in section 15.2.3.1 that dangerous goods which have to be separated from each other should not be carried in the same cargo transport unit, but the Code does not specifically address prohibited co-loading. RSPA determined to impose more stringent segregation requirements for certain materials shipped by rail or highway because these materials are exposed to greater transportation stresses over longer durations (over-the-road vibration and car handling in rail yards).

In response to petitioner requests, RSPA is revising the tables in paragraph (d) in §§ 174.81 and 177.848 by removing letter "O" requirements for Class 3 liquids co-loaded with 4.1, 4.3 and 5.2 materials; and for Division 2.1 flammable gases co-loaded with 4.2, 4.3, 5.1 and 5.2 materials. RSPA also is revising the tables in §§ 174.81 and 177.848 to permit the co-loading of Class 8 (corrosive) liquids with Division 4.3 materials under the less restrictive conditions specified by the letter "O." The tables in both sections are further revised by removing paragraph (e)(5)(ii) specifying letter "B" requirements and removing the letter "B" from the table. The 10 cm minimum height requirement is not limited to palletized materials, and has been moved to paragraph (e)(3). RSPA emphasizes that, in addition to the four-foot separation distance and 10 cm minimum height indicated by the letter "O" in paragraph (e)(3), any other equivalent means may be employed to assure that, in the event of an incident resulting in leakage of materials from packages, commingling of hazardous materials will not occur.

Part 178: Specifications for Packagings

Section 178.2. Several petitioners asked RSPA to clarify the term "manufacturer" as if is applied to the functions of certifying compliance with performance standards under part 178. HMAC observed that paragraph (b) fails to identify any particular person who is required to perform the marking function. The definition of "manufacturer" in § 171.8 also fails to specifically identify such a person. HMAC added that it is unclear why "marking" should be identified as the sole critical factor in determining the "manufacturer" since the process of creating any packaging also includes its design, fabrication, assembly, testing and may include such other functions as maintenance, reconditioning, repair or preparation for transport. HMAC suggested a new definition of "manufacturer" as any person "who designs, manufactures, fabricates, assembles, marks, maintains, reconditions, repairs, tests or prepares a package . . ." Another petitioner said that "most people encountering the term 'manufacturer' would assume it means the actual manufacturer of the packaging," and recommended that RSPA adopt additional terms as necessary to identify other participants in the packaging certification process.

RSPA agrees that responsibility for certifying compliance with part 178 should be more clearly established. However, RSPA believes identification of specifically responsible persons, as HMAC suggested, should be left to the contractual arrangements made by parties who create, close, and test design types. Accordingly, paragraph (b) is revised by removing the reference to "manufacturer" and paragraph (b)(2) is revised to emphasize that "the person" whose name is included in the certification mark required in § 178.503(a)(8) is to be held responsible for compliance with subparts L and M of part 178. In other words, "the person" (manufacturer, shipper, third-party laboratory, or others) who applies the certification mark containing his name, address or symbol is carrying out the function of certifying that the packaging he sells, distributes or uses complies in every respect with the successfully tested design type. For consistency elsewhere in part 178, RSPA is removing references to the "manufacturer" as being solely responsible for package certification.

Two petitioners asked RSPA to make the notification requirements in paragraph (c) a recommendation and not a requirement. They said mandatory notification requirements will add significant expense in time, documentation and delivery of notification. One petitioner claimed, "Within the drum industry, methods of closure are well known." Requiring manufacturers to notify each person to whom packagings are transferred of design shortfalls is essential in a performance standards system in which eventual users are much more involved in package design.

Notification to users of requirements not met at the time of transfer addresses a gap in the Hazardous Materials Regulations by closing a loop of compliance with parts 178 and 173 for persons who certify packagings and persons who prepare them for transportation. Therefore, paragraph (c) is revised to specify that the packaging manufacturer "or other person certifying compliance with the requirements of this part," and each subsequent packaging distributor, must notify users of what remains to be done to prepare (close) packagings built to certified design types for transportation. For example, a drum user could be notified of the type of gasketing described in the design type test documentation for closing a drum built to the successfully tested design type. A combination packaging user could be notified of the type of tape described in the documentation to close an outer 4G fiberboard box. Notification requirements in paragraph (c) directly relate to the shipper's part 173 responsibility to assure that the integrity of packages constructed or assembled according to successfully tested design types is maintained under normal transportation conditions. Paragraph (c) and § 173.24(d) comprise essential safety initiatives in the final rule and are therefore maintained as requirements.

Section 178.3. Seven petitioners addressed the size and location of package certification markings specified in paragraph (a). Four petitioners recommended removal of marking sizes specified in paragraph (a)(4) to allow greater design flexibility and to be consistent with UN Recommendations which do not suggest specific marking sizes. One petitioner urged RSPA to prohibit the placing of markings on the bottoms of packagings "because it makes it very difficult to verify the markings if containers are heavy."

The marking sizes specified in paragraph (a)(4) are intended to provide necessary standardization in the application of legible markings and are consistent with UN Recommendations suggesting "a size relative to the packaging as to be readily visible." With respect to marking location, RSPA encourages the industry to develop its own set of cost-effective standards. The issues of marking size and location are currently being considered by the UN Subcommittee of Experts and any changes to these requirements will be addressed in future rulemaking. A new paragraph (c) is added to clarify that a packaging may be marked in conformance with more than one specification or standard.

Section 178.503. Five petitioners asked RSPA to add a new paragraph (b) to § 178.503 requiring the permanent embossing of drum certification information. NABADA claimed that the lack of permanent certification markings "will result in the obliteration of all

testing method. RSPA notes that companies that conducted the equivalency tests did not evaluate the effectiveness of the T-zone test by using drums that were known to leak. This procedure may have yielded less favorable results.

However, in view of the time it takes to conduct the full submersion leakproofness test in high-volume production lines, and based on data submitted by petitioners, RSPA agrees that a partial solution over seams leakproofness test, with chime cuts, conducted at currently applied test pressure levels (i.e., not less than 7 psi) is an acceptable production line procedure for detecting leaks. Therefore, RSPA is revising Appendix B to permit a production line solution over partial seams leakproofness test for drums intended to be used for all three packing groups, provided packagings are restrained while an internal air pressure of not less than 7 psi is applied. As required under the current approval, packagings must be coated with soap solution over the entire side seam and a distance of not less than eight inches on each side of the side seam along the chime seam(s). Chime cuts must be made on the initial drum at the beginning of each production run and on the initial drum after any adjustment to the chime seamer.

Proposed addition to appendix B of an alcohol spray test for fiber drums and use of a "sensitive commercial pressure gauge" are declined because petitioners did not submit sufficient information to justify taking these actions.

HMAC asked RSPA to revise paragraph (d) to require the use of an inert gas detector to detect leakage in cases where full water submersion would affect the integrity of the packaging. However, RSPA believes the alternatives to full water submersion now authorized for design qualification and production testing should adequately address this problem without any further revision of paragraph (d).

Section 178.606. RSPA is adding a provision to paragraph (b) to permit, under certain conditions, stack testing of the outer packagings of combination packagings without the inner packagings.

Two petitioners asked RSPA to extend the dynamic compression test authorized for periodic retesting in paragraph (c)(2)(ii) to the design qualification stacking test prescribed in paragraph (c). These petitions are declined because, in this final rule, RSPA has determined not to go beyond UN recommendations in mandating any design-type test not contained in chapter 9. Alternative design-type tests yielding equivalent results may be used if approved by the Associate Administrator for Hazardous Materials Safety.

A recommendation by MTMC to add alternative design qualification tests for plastic drums and jerricans, including shorter duration tests in varying temperature or pressure is declined for lack of adequate justification. RSPA is adopting HMAC's suggested revised formula for determining the application of dynamic compression in retesting packagings intended for both liquids and solids. The revised formula takes into account the partial filling of packagings for testing (98% for liquids, 95% for solids).

Section 178.608. Four petitioners recommended removal of the vibration test standard because vibration testing is not now a requirement under international standards. For reasons stated under § 173.24a(a)(5), RSPA is maintaining this capability standard. RSPA is accepting CPC's petition to modify the vibration test method to include the use of rotary motion tables producing the same peak-to-peak vertical double amplitude. CPC said these machines constitute about 95 percent of those available.

RSPA also is revising criteria in paragraph (c) for passing the test by adding the following language, "No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength." This revision is contained in the U.S. proposal to add the vibration test to chapter 9 of the UN Recommendations. It extends to vibration testing, RSPA's intent in Docket HM-181 to emphasize maintenance of package structural integrity during transportation by aligning criteria for passing the vibration test with criteria in § 178.603(f) for passing the drop test and § 178.606(d) for passing the stacking test. It also more closely aligns the vibration capability standard with general requirements for packagings in § 173.24.

Part 179: Specifications for Tank Cars

Section 179.101-1. As requested by one petitioner, the "Insulation" entry requirements for 112A200W, 112A340W, 112A500W, 114A340W, and 114A400W tank car tanks are changed to read "4 optional".

Section 179.105-7. In response to several petitions, RSPA is amending this section by adding the word "insulated" before "tank car tank" and correcting the reference from section "A8.01" of appendix A of the AAR Specifications for Tank Cars" to "A8.00." In addition, RSPA is allowing the use of smaller pressure relief devices for all materials poisonous by inhalation, rather than limiting this provision to Division 2.3 materials.

Section 179.200-18. Several petitioners suggested a longer implementation period for the stenciling requirements in paragraph (b)(4). RSPA disagrees. These stencils may be applied during the loading process.

Federal Preemption Under the HMTA

Section 105(a)(4) of the HMTA, as amended by the HMTUSA, preempts any non-Federal (i.e., State, political subdivision, or Indian tribe) law or regulation concerning certain "covered subjects" unless the non-Federal requirement is "substantively the same" as the Federal law or regulation on that subject. The "covered subjects" are:

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

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

(iii) The preparation, execution, and use of shipping documents pertaining to hazardous materials and requirements respecting the number, content, and placement of such documents;

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

(v) The design, manufacturing, fabrication, marking, maintenance, reconditioning, repairing, or testing of a package or container which is represented, marked, certified, or sold as qualified for use in the transportation of hazardous materials.

49 App. U.S.C. 1804(a)(4) (A) and (B)

In a February 28, 1991 final rule (56 FR 8616), RSPA added this new preemption standard to § 107.202 to mirror the statute. Section 105(a)(5) of the HMTA, as amended by the HMTUSA, provides that if DOT issues a regulation concerning any of the covered subjects after the date of enactment of the HMTUSA (November 16, 1990), DOT must determine and publish in the Federal Register the effective date of the Federal preemption. That effective date may not be earlier than the 90th day following the date of issuance and not later than two years after the date of issuance.

To the extent that the requirements of Docket HM-181 involve covered subjects, States, political subdivisions, or Indian tribes may only establish, maintain, and enforce laws, regulations, or other requirements concerning such subjects if they are substantively the

same as the requirements in Docket HM-181. RSPA has determined that the effective date of Federal preemption for these requirements will be October 1, 1993.

Rulemaking Analyses and Notices

A. Executive Order 12291

This final rule has been reviewed under the criteria specified in § 1(b) of Executive Order 12291 and is determined not to be a major rule. However, it is a significant rule under the regulatory procedures of the Department of Transportation (44 FR 11034). This final rule does not impose additional requirements and, in fact, provides relief in some areas. The net result is that costs imposed under the final rule published in the Federal Register on December 21, 1990 are reduced, but without a reduction in safety [55 FR 52402]. The original regulatory evaluation of the final rule was reexamined but was not modified because the changes made under this rule provide limited relief and thus will result in minimal economic impact on industry.

B. Executive Order 12612

This action has been analyzed in accordance with Executive Order 12612 ("Federalism"). The HMTA contains an express preemption provision which RSPA is implementing at the minimum level necessary to achieve the objectives of the statute. Therefore, preparation of a Federalism Assessment is not warranted.

C. Impact on Small Entities

Based on limited information concerning size and nature of entities likely to be affected by this rule, I certify this rule will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A regulatory flexibility analysis is available for review in the docket.

D. Paperwork Reduction Act

This amendment imposes no changes to the information collection and recordkeeping requirements contained in the December 21, 1990 final rule, which was approved by the Office of Management and Budget (OMB) under the provisions of 44 U.S.C. chapter 35.

E. Regulatory Information Number (RIN)

A regulatory information 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 numbers contained in the heading of this document can be used to cross-reference this action with the Unified Agenda.

F. National Environmental Policy Act

This final rule has been reviewed under the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*) and does not require an environmental impact statement.

List of Subjects

49 CFR Part 106

Administrative practice and procedure, Hazardous materials transportation.

49 CFR Part 107

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

49 CFR Part 171

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

49 CFR Part 172

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

49 CFR Part 173

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

49 CFR Part 174

Hazardous materials transportation, Radioactive materials, Railroad safety.

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, Reporting and recordkeeping requirements.

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

PART 106—RULEMAKING PROCEDURES

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

Authority: 49 App. U.S.C. 1472(h)(1); 49 App. U.S.C. 1672; 49 App. U.S.C. 1803, 1804, 1808; 49 App. U.S.C. 1653, 1657(e); 49 App. U.S.C. 2002.

§ 106.3 [Amended]

2. In § 106.3, in paragraph (a) the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

Appendix A [Amended]

3. In part 106, appendix A, in paragraph (a), the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

PART 107—HAZARDOUS MATERIALS PROGRAM PROCEDURES

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

Authority: 49 App. U.S.C. 1421(c); 49 App. U.S.C. 1802, 1806, 1808, 1811; 49 CFR 1.45 and 1.53 and app. A of part 1, Public Law 89-670 (49 U.S.C. 1653(d), 1655).

§ 107.1 [Amended]

5. In § 107.1, in paragraph (a), the wording "Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

6. In § 107.215, paragraphs (b)(6), (b)(7), and (b)(8) are revised to read as follows:

§ 107.215 Application.

* * * * *

(b) * * *

(6) State why the applicant believes the State, political subdivision or Indian tribe requirements affords an equal or greater level of protection to the public than is afforded by the requirements of

the Act or the regulations issued under the Act;

(7) State why the applicant believes the State, political subdivision or Indian tribe requirement does not unreasonably burden commerce; and

(8) Specify what steps the State, political subdivision or Indian tribe is taking to administer and enforce effectively its inconsistent requirement.

§ 107.502 [Amended]

7. In § 107.502, in paragraph (d), the wording "Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

Subpart G [Removed]

8. In part 107, subpart G, consisting of §§ 107.601 and 107.603, is removed.

§§ 107.3 and 107.402 [Amended]

9. In addition to the amendments set forth above, in §§ 107.3 and 107.402(a), the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety" each place it appears.

§§ 107.401, 107.402, 107.403, 107.404, 107.405 [Amended]

10. In addition to the amendments set forth above, part 107 is amended by removing the wording "Director, OHMT" and replacing it with "Associate Administrator for Hazardous Materials Safety" in the following sections:

(a) § 107.401(b)
(b) § 107.402(b)(6)
(c) § 107.402(c)
(d) § 107.403(a)
(e) § 107.403(b)
(f) § 107.404(a)(3)
(g) § 107.404(b)
(h) § 107.405(a)
(i) § 107.405(b)

§ 107.3 [Amended]

11. In addition to the amendments set forth above, in § 107.3, the definition "OHMT" is removed.

§ 107.317 [Amended]

11a. In addition to the amendments set forth above, in § 107.317(c), the wording "OHMT" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

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

Authority: 49 App. U.S.C. 1802, 1803, 1804, 1805, 1808, 1818; 49 CFR Part 1.

§ 171.3 [Amended]

13. In § 171.3, in Note 1, in the first sentence, the word "that" is revised to read "to".

§ 171.4 [Removed and Reserved]

14. Section 171.4 is removed and reserved.

§ 171.5 [Removed and Reserved]

15. Section 171.5 is removed and reserved.

16. Section 171.6 is revised to read as follows:

§ 171.6 Control numbers under the Paperwork Reduction Act.

(a) *Purpose and scope.* This section collects and displays the control numbers assigned to the HMR collections of information by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1980. This section complies with the requirements of 5 CFR 1320.7(f), 1320.12, 1320.13 and 1320.14 (OMB regulations implementing the Paperwork Reduction Act of 1980) for the display of control numbers assigned by OMB to collections of information of the HMR.

(b) *OMB control numbers.* The table in paragraph (b)(2) of this section sets forth the control numbers assigned to collection of information in the HMR by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1980.

(1) Column 1 lists the OMB control number assigned to the HMR collections of information. Column 2 contains the Report Title of the approved collection of information. Column 3 lists the part(s) or section(s) in 49 CFR identified or described in the collection of information.

(2) Table.

Current OMB control No.	Title	Title 49 CFR part or section where identified and described
2137-0014	Cargo Tank Specification Requirements.	§§ 107.503, 178.320, 178.337, 178.338, 178.345, 180.417, 180.409.
2137-0018	Portable Tank Inspection and Testing.	§§ 173.24, 173.32, 173.32a, 173.32b, 173.32d
2137-0022	Recordkeeping and Information Collection for Cylinders.	§§ 173.34, 173.303(d)
2137-0034	Hazardous Material Shipping Papers.	Part 172, §§ 172.7(a)(1), 173.22(a)(1), 173.56(b)(1), (d)(1), (e)(2), 173.150(f)(3)(i), 174.10(c), 174.12, 174.25, 174.26(c), 174.114, 175.30, 175.35, 175.703, 176.9, 176.24, 176.27, 176.30, 176.31, 176.36, 176.89, 176.90, 176.95.
2137-0039	Hazardous Materials Incident Report.	§§ 171.15, 171.16.
2137-0051	Rulemaking and Exemption Petitions.	Part 107, Subpart B, §§ 106.31, 107.5, 107.7, 107.103(b)(11), (d).
2137-0510	RAM Transportation Requirements.	§§ 173.22(c), (d), 173.417(a)(5), (b)(3), (4), 173.471(a), 471(d), (f), 173.472, 173.476(a), 173.416(b), 173.473(a), 173.476(b), 173.473(d), (e), 173.478(a), 173.417(b)(4), 173.477, 173.478, 173.415(a), 173.457(b), 173.414(d), 177.825(a), (d).
2137-0542	Cryogenic Liquids Requirements.	§§ 177.816, 177.818, 177.840(h), 173.33(d)(1)(ii).

Current OMB control No.	Title	Title 49 CFR part or section where identified and described
2137-0557	Approvals for Hazardous Materials.	§§ 107.402, 107.404, 107.300a, 173.300b, 173.51(a), (b) 173.56(a)(2), (b)(1), (2), (4), (c), (f), (g), (i), (j)(3), 173.63(c), 173.171(a), (c), 173.180(a), 173.340(a), (b), (c)(4), 173.336, 172.102(c)(B69), 173.21, 173.159(f), 173.3e, 173.4(a)(11), 173.24(e)(3)(iii), 173.128(c)(4), 173.225(b)(4), (c), 173.245(b), 173.334(d), 173.7, 173.806, 176.340, 173.305, 173.315, 173.319, 173.334, 173.185(a)(h)(1), (2), (3)(ii), 173.214, 176.601(g), 178.606(c), 178.608(b)(5), 179.14(b), 172.101(k)(2)(3).
2137-0559	Rail Carriers and Tank Car Tank Requirements.	§§ 173.31(a)(4), 173.31(c)(8), (d), 173.31(d)(4), Table Footnote (i), 173.332(d), 173.336(b)(4), 173.366(a), 173.273(a)(4), 173.247(a)(14), 173.10, 174.9, 174.20, 174.50, 174.61(c), 174.63(d)(1), (2), 174.81 Table Note b, 177.8484(a) Table Note b, 174.114(a), 174.104(c), (e), (f).
2137-0572	Testing Requirements for Packaging.	§§ 178.601(f), 178.0-2(c).
2137-0575	Bulk Packaging Marking Requirements.	§§ 172.332, 172.336.
2137-0580	Emergency Response Communication Standards.	Part 172, Subpart G.

§ 171.7 [Amended]

17. In § 171.7, the following changes are made:

a. In the paragraph (a) heading, the word "*incorporation*" is revised to read "*incorporated*".

b. In paragraph (a)(3), in the table, for the entry for "*General Services Administration*, Federal Specification RR-C-901C", the references "172.302; 172.304" are removed and replaced with "173.302; 173.304; 173.336".

c. In paragraph (b), in the table, for the entry "Emergency Handling of Hazardous Materials in Surface Transportation", the year "1987" is removed and replaced with "1989".

18. In § 171.8, the following definitions are added, revised, or removed, as indicated, in appropriate alphabetical order:

§ 171.8 Definitions and abbreviations.

(Add:)

* * * * *

Hazard zone means one of four levels of hazard (Hazard Zones A through D) assigned to gases, as specified in § 173.116(a) of this subchapter, and one of two levels of hazards (Hazard Zones A and B) assigned to liquids that are poisonous by inhalation, as specified in § 173.133(a) of this subchapter. A hazard zone is based on the LC50 value for acute inhalation toxicity of gases and vapors, as specified in § 173.133(a).

Infectious substance (etiologic agent). See § 173.134 of this subchapter.

* * * * *

Magnetic material. See § 173.21(d) of this subchapter.

* * * * *

Material poisonous by inhalation means:

(1) A gas meeting the defining criteria in § 173.115(c) of this subchapter and assigned to Hazard Zone A, B, C, or D in accordance with § 173.116(a) of this subchapter;

(2) A liquid (other than as a mist) meeting the defining criteria in § 173.132(a)(1)(iii) of this subchapter and assigned to Hazard Zone A or B in accordance with § 173.133(a) of this subchapter; or

(3) Any material identified as an inhalation hazard by a special provision in Column 7 of the § 172.101 Table.

* * * * *

Oxidizer. See § 173.28 of this subchapter.

* * * * *

State means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the Virgin Islands, American Samoa, Guam, or any other territory or possession of the United States designated by the Secretary.

* * * * *

(Revise:)

* * * * *

Bulk packaging means a packaging, other than a vessel or a barge, including a transport vehicle or freight container, in which hazardous materials are loaded with no intermediate form of containment and which has:

(1) A maximum capacity greater than 450 L (119 gallons) as a receptacle for a liquid;

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

(3) A water capacity greater than 454 kg (1000 pounds) as a receptacle for a gas as defined in § 173.115 of this subchapter.

* * * * *

Cryogenic liquid. See § 173.115(g) of this subchapter.

* * * * *

Inner receptacle means a receptacle which requires an outer packaging in order to perform its containment function. The inner receptacle may be an inner packaging of a combination packaging or the inner receptacle of a composite packaging.

* * * * *

Irritating material. See § 173.132(a)(2) of this subchapter.

* * * * *

Maximum net mass means the allowable maximum net mass of contents in a single packaging, or as used in subpart M of part 178 of this subchapter, the maximum combined mass of inner packaging, and the contents thereof.

* * * * *

Non-bulk packaging means a packaging which has:

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

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

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

* * * * *

Packaging means a receptacle and any other components or materials necessary for the receptacle to perform its containment function in conformance with the minimum packing requirements of this subchapter. For radioactive

materials packaging, see § 173.403 of this subchapter.

* * * * *

Person means an individual, firm, copartnership, corporation, company, association, joint-stock association, including any trustee, receiver, assignee, or similar representative thereof, or government, Indian tribe, or agency or instrumentality of any government or Indian tribe when it offers hazardous materials for transportation in commerce or transports hazardous materials in furtherance of a commercial enterprise, but such term does not include:

(1) The United States Postal Service; or

(2) For the purposes of sections 110 and 111 of the Hazardous Materials Transportation Act (49 App. U.S.C. 1809–1810), any agency or instrumentality of the Federal Government.

* * * * *

Technical name means a recognized chemical name or microbiological name currently used in scientific and technical handbooks, journals, and texts. Generic descriptions are authorized for use as technical names provided they readily identify the general chemical group, or microbiological group. Examples of acceptable generic chemical descriptions are organic phosphate compounds, petroleum aliphatic hydrocarbons and tertiary amines. For proficiency testing only, generic microbiological descriptions such as bacteria, mycobacteria, fungus, and viral samples may be used. Except for names which appear in Subpart B of Part 172 of this subchapter, trade names may not be used as technical names.

* * * * *

United States means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the Virgin Islands, American Samoa, Guam, or any other territory or possession of the United States designated by the Secretary.

* * * * *

(Remove:)
Etiologic or infectious substance
IM Tank Table
Infectious substance
Magnetic materials
Manufacturer
Net weight
Net weight, Net mass or Net quantity
Oxidizer or Oxidizing material

19–20. Section 171.10 is revised to read as follows:

§ 171.10 Units of measure.

(a) General. To ensure compatibility with international transportation standards, most units of measure in this subchapter are expressed using the International System of Units ("SI" or metric). Where SI units appear, they are the regulatory standard. U.S. standard or customary units, which appear in parentheses following the SI units, are for information only and are not intended to be the regulatory standard.

(b) Abbreviations for SI units of measure generally used throughout this subchapter are as shown in paragraph (c) of this section. Customary units shown throughout this subchapter are generally not abbreviated.

(c) Conversion values. (1) Conversion values are provided in the following table and are based on values provided in ASTM E 380–89, "Standard for Metric Practice."

(2) If an exact conversion is needed, the following method should be used.

TABLE OF CONVERSION FACTORS FOR SI UNITS

Measurement	SI to U.S. standard	U.S. standard to SI
Length	1 cm=0.3937008 in	1 in=2.540000 cm
	1 m=3.280840 ft	1 ft=0.3048000 m
Thickness	1 mm=0.03937008 in	1 in=25.40000 mm
Mass (weight)	1 kg=2.204622 lb	1 lb=0.4535924 kg
	1 gr=0.03527397 oz	1 oz=28.34952 gr
Pressure	1 kPa=0.1450377 psi	1 psi=6.894757 kPa
	1 Bar=100 kPa=14.5 psi	1 psi=0.06 Bar
	1 kPa=7.5 mm Hg	
Volume (liquid)	1 l=0.2641720 gal	1 gal=3.785412 l
	1 ml=0.03381402 oz	1 oz=29.57353 ml
	1 m^3=35.31466 ft^3	1 ft^3=0.02831685 m^3
Density	1 kg/m^3=0.06242797 lb/ft^3	1 lb/ft^3=16.01846 kg/m^3

Abbreviations for units of measure are as follows:
Unit of measure and abbreviation:
(SI): Millimeter, mm; centimeter, cm; meter, m; gram, g; kilogram, kg; kiloPascal, kPa; liter, L; milliliter, ml; cubic meter, m^3;
(U.S.): Inch, in; foot, ft; ounce, oz; pound, lb; pounds per square inch, psi; gallon, gal; cubic feet, ft^3.

21. In § 171.11, paragraphs (c) and (d)(9) are revised and paragraph (d)(12) is added to read as follows:

§ 171.11 Use of ICAO technical instructions.

* * * * *

(c) Is not a forbidden material or package according to § 173.21 of this subchapter or Column 3 of the § 172.101 Table; and

(d) * * *

(9) When a hazardous material, which is subject to the requirements of the ICAO Technical Instructions, is a material poisonous by inhalation (see § 171.8 of this subchapter)—

(i) The shipping description must include the words "Poison-Inhalation Hazard" or "Inhalation Hazard", as required in § 172.203(m) of this subchapter;

(ii) The material must be packaged in accordance with the requirements of this subchapter; and

(iii) The package must be marked in accordance with § 172.313 of this subchapter and labeled with "POISON" or "POISON GAS", as appropriate, in accordance with subpart E of part 172 of this subchapter.

* * * * *

(12) If an ammonium nitrate fertilizer or ammonium nitrate mixed fertilizer, must not meet the definition and criteria of a Class 1 (explosive) material.

22. In § 171.12, paragraph (b) is revised, the last parenthetical sentence of paragraph (c) is revised, and paragraphs (c)(1) and (2) are added to read as follows:

§ 171.12 Import and export shipments.

* * * * *

(b) *IMDG Code.* The IMDG Code sets forth descriptions, classifications, packagings, labeling and vessel stowage requirements. Notwithstanding the provisions of this subchapter, a material which is packaged, marked, classed, labeled, placarded, described, stowed

and segregated, and certified in accordance with the IMDG Code, and otherwise conforms to the requirements of this section, may be offered and accepted for transportation and transported within the United States. The following conditions and limitations apply:

(1) The provisions of this paragraph (b) apply only if all or part of the transportation is by vessel.

(2) A number of materials listed in the IMDG Code are not subject to the requirements of this subchapter. The provisions of this subchapter do not apply to materials listed in the IMDG Code which are not designated as hazardous materials under this subchapter. These materials may, however, be transported in the U.S. when described, marked and labeled in accordance with the IMDG Code.

(3) A material designated as a hazardous material under this subchapter which is not subject to the requirements of the IMDG Code may not be transported under the provisions of this section.

(4) A forbidden material or package according to § 173.21 of this subchapter or Column 3 of the § 172.101 Table may not be transported under the provisions of this section.

(5) Bulk packagings must conform to the requirements of this subchapter.

(6) For export, packagings must conform to the applicable requirements in §§ 173.24, 173.24a and 173.28 of this subchapter.

(7) A Class 1 material must be classed and approved under the procedures in Subpart C of Part 173 of this subchapter, and packages of Class 1 materials must be marked in accordance with § 172.320 and Part 176 of this subchapter.

(8) When a hazardous material, which is subject to the requirements of the IMDG Code, is a material poisonous by inhalation (see § 171.8 of this subchapter)—

(i) The shipping description must include the words "Poison-Inhalation Hazard" or "Inhalation Hazard", as required in § 172.203(m) of this subchapter;

(ii) The material must be packaged in accordance with the requirements of this subchapter; and

(iii) The package must be marked in accordance with § 172.313 of this subchapter and labeled and placarded with "POISON" or "POISON GAS", as appropriate, in accordance with Subparts E and F, respectively, of Part 172 of this subchapter.

(9) Class 7 materials must conform to the provisions of paragraph (d) of this section.

(10) For a hazardous waste, as defined in this subchapter—

(i) The word "Waste" must precede the proper shipping name on shipping papers and packages; and

(ii) The requirements of § 172.205 of this subchapter with respect to hazardous waste manifests are applicable.

(11) A hazardous substance as defined in this subchapter must conform to the requirements of § § 172.203(c) and 172.324 of this subchapter.

(12) A poisonous material must conform to the requirements of § 172.203(m) of this subchapter.

(13) For a Division 4.3 material, the words "Dangerous When Wet" must appear in association with the basic description on shipping papers.

(14) Any ammonium nitrate fertilizer or ammonium nitrate mixed fertilizer must not meet the definition and criteria of a Class 1 (explosive) material.

(15) Cylinders not manufactured to DOT specifications must conform to the requirements of § 173.301(i) and (j) of this subchapter.

(16) Shipments of hazardous materials under this section must conform to the requirements for emergency response information as prescribed in subpart G of part 172 of this subchapter.

(c) * * * The requirement in § 172.201(d) of this subchapter for an emergency telephone number does not apply to shipments made in accordance with the IMDG Code if the hazardous material:

(1) Is not offloaded from the vessel;

(2) Is offloaded between ocean vessels at a U.S. port facility without being transported by public highway.

* * * * *

23–24. In § 171.12a, the first sentence in paragraph (b) introductory text, and paragraphs (b)(1), (b)(5) and (b)(13) are revised and paragraph (b)(14) is added to read as follows:

§ 171.12a Canadian shipments and packagings.

* * * * *

(b) *Conditions and limitations.* Notwithstanding the requirements of Parts 172, 173, and 178 of this subchapter, and subject to the limitations of paragraph (a) of this section, a hazardous material that is classed, marked, labeled, placarded, described on a shipping paper, packaged, and offered for transportation in accordance with the Regulations Respecting the Handling, Offering for Transport and Transporting of Dangerous Goods (the Transportation of Dangerous Goods Regulations or TDG Regulations), issued by the Government of Canada, may be offered and accepted for transportation and transported by motor vehicle or rail car. * * *

(1) A number of materials listed in the TDG Regulations may not be subject to the requirements of this subchapter. The provisions of this subchapter do not apply to materials listed in the TDG Regulations which are not designated as hazardous materials under this subchapter. These materials may, however, be transported in the U.S. when described, marked and labeled in accordance with the TDG Regulations.

* * * * *

(5) When a hazardous material, which is a material poisonous by inhalation under the provisions of this subchapter (see § 171.8 of this subchapter), is subject to the requirements of the TDG Regulations—

(i) The shipping description must include the words "Poison-Inhalation Hazard" or "Inhalation Hazard", as required in § 172.203(m) of this subchapter;

(ii) The material must be packaged in accordance with the requirements of this subchapter; and

(iii) The package must be marked in accordance with § 172.313 of this subchapter. Except for a package containing anhydrous ammonia, the package must be labeled and placarded with "POISON" or "POISON GAS", as appropriate, in accordance with subparts E and F, respectively, of part 172 of this subchapter. For shipments of anhydrous ammonia, the shipping paper must contain an indication that the markings, labels and placards have been applied in conformance with the TDG Regulations and this paragraph (b)(5).

* * * * *

(13) When the provisions of this subchapter require that a DOT specification or UN standard packaging must be used for a hazardous material, a packaging authorized by the TDG Regulations may be used only if it corresponds to the DOT specification or UN packaging authorized by this subchapter. Cylinders not manufactured to DOT specifications must conform to the requirements of § 173.301(i) and (j) of this subchapter.

(14) Any ammonium nitrate fertilizer or ammonium nitrate mixed fertilizer must not meet the definition and criteria of a Class 1 (explosive) material.

§ 171.12a [Amended]

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

a. In paragraph (a), in the second sentence, the word "either" is added immediately before the word "terminate".

b. In paragraph (b)(4), "§ 173.320" is revised to read "§ 172.320".

26. Section 171.14 is republished to read as follows:

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

(a) *Purpose and scope.* A rule published in the Federal Register on December 21, 1990, effective October 1, 1991, resulted in a comprehensive revision of this subchapter based on the UN Recommendations. The purpose of the provisions of this section is to provide an orderly transition to the new requirements, so as to minimize any burdens associated with them. During a transition period as provided herein, persons may elect to comply with either the applicable old requirements of this subchapter in effect on September 30, 1991, or the new requirements of this subchapter appearing in the December 21, 1990 rule, and the rule published in the Federal Register on September 18, 1991, effective October 1, 1991.

(b) *Transition dates.* The following transition dates apply only to the new requirements in the December 21, 1990 rule:

(1) *October 1, 1991.* On October 1, 1991, the following requirements are effective:

(i) For new explosives, the hazard classification procedures as set forth in subpart C of part 173 (for explosives) of this subchapter and, except for vehicle placarding, hazard communication requirements (i.e., shipping papers, emergency response information, package markings, and labeling) as set forth in part 172 of this subchapter.

(ii) The classification of materials poisonous by inhalation meeting the criteria of Division 2.3 (see § 173.115(c) of this subchapter), which includes materials assigned Special Provision 13 in Column 7 of the § 172.101 Table; Division 6.1 (see § 173.133(a) of this subchapter); or are otherwise identified as poisonous by inhalation through a special provision in Column 7 of the § 172.101 Table. For such materials, the words "Poison-Inhalation Hazard" or "Inhalation Hazard" as required by § 172.203(m) or by Special Provision 13, as appropriate, shall be entered on shipping papers in association with the basic description.

(2) *October 1, 1992.* On October 1, 1992, the following requirements are effective:

(i) Hazard communication requirements of part 172 of this subchapter (including placarding requirements of subpart F of part 172 of this subchapter) for all materials poisonous by inhalation, which includes materials meeting the criteria in §§ 173.115(c) and 173.133(a) of this subchapter or materials otherwise identified as poisonous by inhalation through a special provision (or assigned Special Provision 13) in Column 7 of the § 172.101 Table.

(ii) For infectious substances (etiologic agents), the hazard classification procedures as set forth in § 173.134 of this subchapter and hazard communication requirements (i.e., shipping papers, emergency response information, package markings, and labeling) as set forth in part 172 of this subchapter.

(3) *October 1, 1993.* On October 1, 1993, the following requirements are effective:

(i) Classification and hazard communication requirements in part 172 of this subchapter, other than subpart F (placarding), and part 173 of this subchapter, that were not previously in effect;

(ii) Packaging requirements for all materials meeting the criteria for poisonous by inhalation;

(iii) Modal segregation requirements in §§ 174.81 and 177.848 of this subchapter; and

(iv) All other requirements of the December 21, 1990, rule for which a lengthier transition period is not provided elsewhere in this section.

(4) *October 1, 1994.* On October 1, 1994, the following are effective:

(i) Placarding requirements in subpart F of part 172 of this subchapter that were not previously in effect; and

(ii) Package manufacturing and marking requirements under the provisions of subpart B of 173, and parts 178 and 179 of this subchapter. (DOT specification packagings removed from part 178 of this subchapter by the December 21, 1990, rule may no longer be manufactured.).

(5) *October 1, 1996.* On October 1, 1996, requirements in parts 172 and 173 of this subchapter for maintenance and use of packagings that were not previously in effect are effective. (DOT specification packagings removed from part 178 of this subchapter by the December 21, 1990 final rule and packaging authorizations removed from part 173 of this subchapter by the December 21, 1990 final rule may no longer be used in place of new packaging requirements.).

(c) *Other transitional provisions.*—(1) *Packages filled prior to October 1, 1991.* Notwithstanding the marking and labeling provisions of subparts D and E, respectively, of part 172, and the packaging provisions of part 173 and subpart B of part 172 of this subchapter, a package may be offered for transportation and transported prior to October 1, 2001, if it—

(i) Conforms to the old requirements of this subchapter in effect on September 30, 1991;

(ii) Is filled with hazardous materials prior to October 1, 1991;

(iii) Is marked "Inhalation Hazard", if appropriate, in accordance with § 172.313 of this subchapter or Special Provision 13, as assigned in the § 172.101 Table; and

(iv) Is not emptied and refilled on or after October 1, 1991.

(2) *Transitional placarding provisions.* Until October 1, 1994, placards which conform to specifications for placards in effect on September 30, 1991, may be used in place of the placards specified in subpart F of part 172 of this subchapter, in accordance with the following table:

PLACARD SUBSTITUTION TABLE

Hazard class or division No.	Current placard name	Old (Sept. 30, 1991) placard name
Division 1.1	Explosives 1.1	Explosives A.
Division 1.2	Explosives 1.2	Explosives A.
Division 1.3	Explosives 1.3	Explosives B.
Division 1.4	Explosives 1.4	Dangerous.
Division 1.5	Explosives 1.5	Blasting agents.
Division 1.6	Explosives 1.6	Dangerous.
Division 2.1	Flammable gas	Flammable gas.
Division 2.2	Nonflammable gas.	Nonflammable gas.
Division 2.3	Poison gas	Poison gas.
Class 3	Flammable	Flammable.
Combustible liquid.	Combustible	Combustible.
Division 4.1	Flammable solid.	Flammable solid.
Division 4.2	Spontaneously combustible.	Flammable solid.
Division 4.3	Dangerous when wet.	Flammable solid W.
Division 5.1	Oxidizer	Oxidizer.
Division 5.2	Organic peroxide.	Oganic peroxide.
Division 6.1, PG I and II.	Poison	Poison.
Division 6.1, PG III.	Keep away from food.	(none required).
Class 7	Radioactive	Radioactive.
Class 8	Corrosive	Corrosive.
Class 9	Class 9	(none required.)

(3) *Intermixing old and new requirements.* During the transition periods provided in paragraph (b) of this section, it is recommended that hazard communication requirements be consistent where practicable, i.e., marking, labeling, placarding, and shipping paper descriptions should conform to either the old requirements of this subchapter in effect on September 30, 1991, or new requirements of this subchapter added or revised by the December 21, 1990, rule, without intermixing of communication elements. However, intermixing is permitted, during the applicable transition periods,

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

(i) A package may be manufactured to the old requirements of this subchapter in effect on September 30, 1991 (e.g., a DOT 17E drum) even if marked and labeled for the hazardous material contained therein under the new requirements of this subchapter appearing in the December 21, 1990 rule;

(ii) A package may be manufactured to the new requirements of this subchapter appearing in the December 21, 1990 rule (e.g., a UN 4G box) even if marked and labeled for the hazardous material contained therein under the old requirements of this subchapter in effect on September 30, 1991;

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

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

(v) Either old or new placards may be used during the appropriate placarding transition period regardless of whether old or new shipping descriptions and package markings are used; and

(vi) Either old or new handling requirements, including segregation and stowage, may be used during the applicable transition period (see paragraph (b)(3) of this section).

§ 171.19 [Amended]

27. In § 171.19, the wording "Director, OHMT" is removed and replaced with "Associate Administrator for Hazardous Materials Safety" each place it appears.

§ 171.20 [Amended]

28. In § 171.20, the following changes are made:

a. In paragraph (b), the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

b. In paragraphs (a) and (c), the wording "Director, OHMT" is removed and replaced with "Associate Administrator for Hazardous Materials Safety" each place it appears.

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

29. The authority citation for part 172 is revised to read as follows:

Authority: 49 App. U.S.C. 1803, 1804, 1805, 1808; 49 CFR part 1, unless otherwise noted.

30. In § 172.101, paragraphs (c)(10)(i)(E) and (F) are added to read as follows:

§ 172.101 Purpose and use of hazardous materials table.

* * * * *

(c) * * *

(10) * * *

(i) * * *

(E) The material is identified by special provision in Column 7 of the § 172.101 Table as a material poisonous by inhalation; however, it no longer meets the definition of poisonous by inhalation or it falls within a different hazard zone than that specified in the special provision; or

(F) The material can be appropriately described by a shipping name that describes its intended application, such as "Coating solution", "Extracts, flavoring" or "Compound, cleaning liquid".

* * * * *

§ 172.101 [Amended]

31. In addition, in § 172.101, the following changes are made:

a. In paragraph (c)(8), the paragraph heading is revised to read "*Hazardous substances.*"

b. In paragraph (c)(9), a paragraph heading is added to read "*Hazardous wastes.*"

c. In paragraph (c)(10), the paragraph heading is revised to read "*Mixtures and solutions.*"

d. In paragraph (c)(10)(i) introductory text, the wording "not identified specifically by name," is added immediately after "solution" and before "comprised" and the wording "material shall" is revised to read "material, shall".

e. In paragraph (c)(10)(i)(C), the "or" at the end of the paragraph is removed.

f. In paragraph (c)(10)(i)(D), the period is removed and replaced with a semicolon.

g. In paragraph (c)(10)(ii), the wording "paragraphs (c)(10)(i)(A), (i)(B), (i)(C), and (i)(D) of this section are" is revised to read "paragraph (c)(10)(i) of this section is".

h. In paragraph (c)(11) introductory text, the wording "173.56(e)(1) or 173.114a(g)(2)" is revised to read "or 173.56(e)(1)".

i. In paragraph (c)(12)(i), the wording "Column 5" is revised to read "Column 6".

j. In paragraph (c)(12)(ii), a paragraph heading is added to read: "*Generic or n.o.s. descriptions.*"

k. In paragraph (c)(12)(iii), a paragraph heading is added to read: "*Multiple hazard materials.*"; the wording "or a dual hazard n.o.s. description (e.g., "Flammable liquid, corrosive n.o.s.")" is removed; the wording "(e.g., "Flammable liquid, corrosive n.o.s.")" is added immediately after "shipping description" and before "shall"; and a second sentence is added to read "Except for a pesticide, a subsidiary hazard of Division 6.1, Packing Group III, need not be considered for selecting a shipping description."

l. In paragraph (d)(4), the wording "or has a flash point above 60.5°C (141°F) but below 93°C (200°F)" is added at the end of the sentence.

m. In paragraph (f), the wording "Classes 1, 2 and 7 materials, combustible liquids, and ORM-D materials" is revised to read "Classes 2 and 7 materials and ORM-D materials".

n. In paragraph (i)(3), in the first sentence, the wording "packaging other than IM portable tanks." is revised to read "packagings, subject to the limitations, requirements and additional authorizations of Column 7." The third sentence is revised to read "Additional authorizations and limitations for use of IM portable tanks are set forth in Column 7."

o. In paragraph (j)(3)(i), the wording "for a solid or liquid, respectively" is removed.

p. In paragraph (j)(4), "(i.e.," is revised to read "(e.g.,".

q. In paragraph (l)(2), the word "Any" is revised to read "any" and the wording "Except as otherwise provided in this section," is added at the beginning of the sentence.

32. In § 172.101, the title of the Table, and the Table itself are revised to read as follows:

§ 172.101 HAZARDOUS MATERIALS TABLE

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Accellerene, see p-Nitrosodimethylaniline												
	Accumulators, electric, see Batteries, wet *etc.*												
D	Accumulators, pressurized, pneumatic *or* hydraulic *(containing non-flammable gas).*	2.2	NA1956		NONFLAMMABLE GAS.		306	306	None	No limit	No limit	A	
	Acetal	3	UN1088	II	FLAMMABLE LIQUID.	T7	150	202	242	5 L	60 L	E	
	Acetaldehyde	3	UN1089	I	FLAMMABLE LIQUID.	A3, B16, T20, T26, T29.	None	201	243	Forbidden	30 L	E	
A	Acetaldehyde ammonia	9	UN1841	III	CLASS 9		155	204	241	200 kg	200 kg	A	34
	Acetaldehyde oxime	3	UN2332	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	A	
	Acetic acid, glacial *or* Acetic acid solution, *more than 80 per cent acid, by mass.*	8	UN2789	II	CORROSIVE	A3, A6, A7, A10 B2, T8.	154	202	242	1 L	30 L	A	12, 21, 48
	Acetic acid solution, *more than 10 per cent but not more than 80 per cent acid, by mass.*	8	UN2790	II	CORROSIVE	A3, A6, A7, A10 B2, T8.	154	202	242	1 L	30 L	A	112
	Acetic anhydride	8	UN1715	II	CORROSIVE	A3, A6, A7, A10, B2, T8.	154	202	242	1 L	30 L	A	40
	Acetone	3	UN1090	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	B	
	Acetone cyanohydrin, stabilized	6.1	UN1541	I	POISON	2, A3, B9, B14, B32, B74, B76, B77, N34, T38, T43, T45.	None	227	244	Forbidden	30 L	D	25, 40, 49
	Acetone oils	3	UN1091	II	FLAMMABLE LIQUID.	T7, T30	150	202	242	5 L	60 L	B	
	Acetonitrile, see Methyl cyanide												
	Acetyl acetone peroxide with more than 9% by mass active oxygen.	Forbidden											
	Acetyl benzoyl peroxide, solid, or more than 40% in solution.	Forbidden											
	Acetyl bromide	8	UN1716	II	CORROSIVE	B2, T12, T26	154	202	242	1 L	30 L	C	8, 40
	Acetyl chloride	3	UN1717	II	FLAMMABLE LIQUID, CORROSIVE.	A3, A6, A7, N34, T18, T26.	None	202	243	1 L	5 L	B	40
	Acetyl cyclohexanesulfonyl peroxide, more than 82 per cent wetted with less than 12 per cent water.	Forbidden											
	Acetyl iodide	8	UN1898	II	CORROSIVE	B2, T9	154	202	242	1 L	30 L	C	8, 40
	Acetyl methyl carbinol	3	UN2621	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	A	
	Acetyl peroxide, solid, or more than 25 percent in solution.	Forbidden											
	Acetylene, dissolved	2.1	UN1001		FLAMMABLE GAS		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	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Acrolein dimer, stabilized	3	UN2607	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	A	40
+	Acrolein, inhibited	6.1	UN1092	I	POISON, FLAMMABLE LIQUID.	1, B9, B12, B14, B30, B42, B72, B77, T38, T43, T45.	None	226	244	Forbidden	Forbidden	D	40
	Acrylamide	6.1	UN2074	III	KEEP AWAY FROM FOOD.	T8	153	213	240	100 kg	200 kg	A	12

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or rail car	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Acrylic acid, inhibited	8	UN2218	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	C	8, 12, 21, 25, 40
	Acrylonitrile, inhibited	3	UN1093	I	FLAMMABLE LIQUID, POISON.	B9, T18, T26	None	201	243	Forbidden	30 L	E	40
	Actuating cartridge, explosive, see Cartridges, power device												
	Adhesives, *containing a flammable liquid*	3	UN1133	II	FLAMMABLE LIQUID	B52, T7, T30	150	173	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, B52, T7, T30	150	173	242	60 L	220 L	A	
	Adiponitrile	6.1	UN2205	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	A	25
	Aerosols, *corrosive, Packing Group II or III, (each not exceeding 1 L capacity)*	2.2	UN1950		NONFLAMMABLE GAS, CORROSIVE	A34	306	None	None	75 kg	150 kg	A	40, 48, 85
	Aerosols, *flammable, (each not exceeding 1 L capacity)*	2.1	UN1950		FLAMMABLE GAS	N82	306	None	None	75 kg	150 kg	A	40, 48, 85
	Aerosols, *non-flammable, (each not exceeding 1 L capacity)*	2.2	UN1950		NONFLAMMABLE GAS.		306, 307	None	None	75 kg	150 kg	A	48, 85
	Aerosols, *poison, each not exceeding 1 L capacity*	2.2	UN1950		NONFLAMMABLE GAS.	3	306	None	None	Forbidden	Forbidden	A	40, 48, 85
	Air, compressed	2.2	UN1002		NONFLAMMABLE GAS.		306	302	302	75 kg	150 kg	A	
	Air, refrigerated liquid (*cryogenic liquid*)	2.2	UN1003		NONFLAMMABLE GAS, OXIDIZER.		320	316	318, 319	Forbidden	150 kg	A	51
	Air, refrigerated liquid, *(cryogenic liquid)non-pressurized.*	2.2	UN1003		NONFLAMMABLE GAS, OXIDIZER.		320	316	318; 319	Forbidden	Forbidden	A	85
	Aircraft evacuation slides, *see* Life saving appliances *etc.*												
D	Aircraft hydraulic power unit fuel tank *(containing a mixture of anhydrous hydrazine and monomethyl hydrazine) (M86 fuel)*	3	NA9302	I	FLAMMABLE LIQUID, POISON, CORROSIVE		None	172	None	Forbidden	30 L	E	
	Aircraft survival kits, *see* Life saving appliances *etc.*												
	Alcoholic beverages	3	UN3065	III	FLAMMABLE LIQUID	B1, N11, T1	150	203	242	5 L	60 L	A	
	Alcohols, n.o.s	3	UN1987	I	FLAMMABLE LIQUID	T8, T31	None	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Alcohols, toxic, n.o.s	3	UN1986	I	FLAMMABLE LIQUID, POISON.	T8, T31	None	201	243	Forbidden	30 L	E	40
				II	FLAMMABLE LIQUID, POISON.	T8, T31	None	202	243	1 L	60 L	B	40
	Aldehydes, n.o.s	3	UN1989	I	FLAMMABLE LIQUID	T8, T31	None	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Aldehydes, toxic, n.o.s	3	UN1988	I	FLAMMABLE LIQUID, POISON.	T8, T31	None	201	243	Forbidden	30 L	E	40
				II	FLAMMABLE LIQUID, POISON.	T8, T31	None	202	243	1 L	60 L	B	40
	Aldol	6.1	UN2839	II	POISON	T8	None	202	243	5 L	60 L	A	48
D	Aldrin, *liquid*	6.1	NA2762	II	POISON		None	202	243	5 L	60 L	B	
D	Aldrin, *solid*	6.1	NA2761	II	POISON		None	212	242	25 kg	100 kg	A	40
	Alkali metal alloys, liquid, n.o.s	4.3	UN1421	I	DANGEROUS WHEN WET.	A2, A3, N34	None	201	244	Forbidden	1 L	D	
	Alkali metal amalgams	4.3	UN1389	I	DANGEROUS WHEN WET.	A2, A3, N34	None	201	244	Forbidden	1 L	D	

	Alkali metal amides	4.3	UN1390	II	DANGEROUS WHEN WET.	A6, A7, A8, A19, A20.	None	212	241	15 kg	50 kg	E	40	
	Alkali metal dispersions, *or* Alkaline earth metal dispersions.	4.3	UN1391	I	DANGEROUS WHEN WET.	A2, A3	None	201	244	Forbidden	1 L	D		
	Alkaline corrosive liquids, n.o.s., see Caustic alkali liquids, n.o.s.													
	Alkaline earth metal alloys, n.o.s.	4.3	UN1393	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	E		
	Alkaline earth metal amalgams	4.3	UN1392	I	DANGEROUS WHEN WET.	A19, N34, N40	None	211	242	Forbidden	15 kg	D		
	Alkaloids, liquid, *poisonous*, n.o.s., *or* Alkaloid salts, liquid, *poisonous*, n.o.s.	6.1	UN3140	I	POISON	A4, T42	None	201	243	1 L	30 L	A		
				II	POISON	T14	None	202	243	5 L	60 L	A		
				III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A		
	Alkaloids, solid, n.o.s. *or* alkaloid salts, solid, n.o.s. *poisonous.*	6.1	UN1544	I	POISON		None	211	242	5 kg	50 kg	A		
				II	POISON		None	212	242	25 kg	100 kg	A		
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A		
	Alkyl, Aryl *or* Toluene sulfonic acid, liquid, *with more than 5 per cent free sulfuric acid.*	8	UN2584	II	CORROSIVE	B2, T8, T27	154	202	242	1 L	30 L	B	9	
	Alkyl, Aryl *or* Toluene sulfonic acid, liquid, *with not more than 5 per cent free sulfuric acid.*	8	UN2586	III	CORROSIVE	T8	154	203	241	5 L	60 L	B	9	
	Alkyl, Aryl *or* Toluene sulfonic acid, solid, *with more than 5 per cent free sulfuric acid.*	8	UN2583	II	CORROSIVE		154	212	240	15 kg	50 kg	A		
	Alkyl, Aryl *or* Toluene sulfonic acid, solid, *with not more than 5 per cent free sulfuric acid.*	8	UN2585	III	CORROSIVE		154	213	240	25 kg	100 kg	A		
	Alkyl phenols, liquid, n.o.s. (*including C2-C8 homologues*).	6.1	UN3145	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A		
	Alkyl phenols, solid, n.o.s. (*including C2-C8 homologues*).	6.1	UN2430	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A		
	Alkylamines, n.o.s, *or* Polyalkylamines, n.o.s., *corrosive.*	8	UN2735	I	CORROSIVE	A3, A6, B10, N34, T42.	None	201	242	0.5 L	2.5 L	A		
				II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A		
				III	CORROSIVE	T8	154	203	241	5 L	60 L	A		
	Alkylamines, n.o.s. *or* Polyalkylamines, n.o.s.*corrosive, flammable.*	8	UN2734	I	CORROSIVE, FLAMMABLE LIQUID.	A3, A6, N34, T8, T31.	None	201	243	0.5 L	2.5 L	A	48	
				II	CORROSIVE, FLAMMABLE LIQUID.	T8, T31	None	202	243	1 L	30 L	A	48	
	Alkylamines, n.o.s. *or* Polyalkylamines, n.o.s. *flammable, corrosive.*	3	UN2733	I	FLAMMABLE LIQUID, CORROSIVE.	T42	None	201	243	0.5 L	2.5 L	D	40	
				II	FLAMMABLE LIQUID, CORROSIVE.	T8, T31	None	202	243	1 L	5 L	B	40	
				III	FLAMMABLE LIQUID, CORROSIVE.	B1, T8, T31	None	203	242	5 L	60 L	A	40	
	Allethrin, see Pesticides, liquid, toxic, n.o.s.													
	Allyl acetate	3	UN2333	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	E	40	
	Allyl alcohol	6.1	UN1098	I	POISON, FLAMMABLE LIQUID.	2, B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	Forbidden	Forbidden	E	40	
	Allyl bromide	3	UN1099	I	FLAMMABLE LIQUID, POISON.	T18	None	201	243	Forbidden	30 L	B	40	
	Allyl chloride	3	UN1100	I	FLAMMABLE LIQUID, POISON.	T18, T26	None	201	243	Forbidden	30 L	E	40	
	Allyl chlorocarbonate, see Allyl chloroformate													
+	Allyl chloroformate	8	UN1722	I	CORROSIVE, POISON.	1, A3, B9, B14, B30, B72, N41, T38, T43, T44.	None	226	244	Forbidden	2.5 L	D	21, 40, 48, 95	
	Allyl ethyl ether	3	UN2335	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	E	40	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Allyl formate	3	UN2336	I	FLAMMABLE LIQUID, POISON.	T16, T26	None	201	243	Forbidden	30 L	E	40
	Allyl glycidyl ether	3	UN2219	III	FLAMMABLE LIQUID, POISON.	B1, T7	150	203	242	60 L	220 L	A	
	Allyl iodide	3	UN1723	II	FLAMMABLE LIQUID, CORROSIVE.	A3, A6, N34, T18	None	201	243	0.5 L	2.5 L	B	40
	Allyl isothiocyanate, stabilized	6.1	UN1545	II	POISON	2, A3, A7, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	60 L	D	40
	Allylamine	6.1	UN2334	I	POISON, FLAMMABLE LIQUID.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	E	40
	Allyltrichlorosilane, stabilized	8	UN1724	II	CORROSIVE, FLAMMABLE LIQUID.	A7, B2, B6, N34, T8, T26	None	202	242	Forbidden	30 L	C	12, 21, 40, 48
	Aluminum alkyl halides	4.2	UN3052	I	SPONTANEOUSLY COMBUSTIBLE.	B9, B11, T28, T29, T40.	None	181	244	Forbidden	Forbidden	D	
	Aluminum alkyl hydrides	4.2	UN3076	I	SPONTANEOUSLY COMBUSTIBLE.	B9, B11, T28, T29, T40.	None	181	244	Forbidden	Forbidden	D	
	Aluminum alkyls	4.2	UN3051	I	SPONTANEOUSLY COMBUSTIBLE.	B9, B11, T28, T29, T40.	None	181	244	Forbidden	Forbidden	D	
	Aluminum borohydride *or* Aluminum borohydride in devices.	4.2	UN2870	I	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	B11	None	181	244	Forbidden	Forbidden	D	
	Aluminum bromide, anhydrous	8	UN1725	II	CORROSIVE		154	212	240	15 kg	50 kg	A	40
	Aluminum bromide, solution	8	UN2580	III	CORROSIVE	T8	154	203	241	5 L	60 L	A	
	Aluminum carbide	4.3	UN1394	II	DANGEROUS WHEN WET.	A20, N41	None	212	242	15 kg	50 kg	A	
	Aluminum chloride, anhydrous	8	UN1726	II	CORROSIVE		154	212	240	15 kg	50 kg	A	40
	Aluminum chloride, solution	8	UN2581	III	CORROSIVE	T8	154	203	241	5 L	60 L	A	
	Aluminum dross, wet or hot	Forbidden											
	Aluminum ferrosilicon powder	4.3	UN1395	II	DANGEROUS WHEN WET, POISON.	A19	None	212	242	15 kg	50 kg	A	40, 85, 103
	Aluminum hydride	4.3	UN2463	I	DANGEROUS WHEN WET.	A19, N40	None	211	242	Forbidden	15 kg	E	
	Aluminum nitrate	5.1	UN1438	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	
	Aluminum phosphate solution, see Corrosive liquids, n.o.s.												
	Aluminum phosphide	4.3	UN1397	I	DANGEROUS WHEN WET, POISON.	A8, A19, N40	None	211	242	Forbidden	15 kg	E	40, 85
	Aluminum phosphide pesticides	6.1	UN3048	I	POISON	A8	None	211	242	Forbidden	15 kg	E	40, 85
	Aluminum powder, coated	4.1	UN1309	II	FLAMMABLE SOLID		151	212	240	15 kg	50 kg	A	13, 39, 101
				III	FLAMMABLE SOLID		151	213	240	25 kg	100 kg	A	13, 39, 101
	Aluminum powder, uncoated	4.3	UN1396	II	DANGEROUS WHEN WET.	A19, A20	None	212	242	15 kg	50 kg	A	39
	Aluminum resinate	4.1	UN2715	III	FLAMMABLE SOLID		151	213	240	25 kg	100 kg	A	
	Aluminum silicon powder, uncoated	4.3	UN1398	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	A	40, 85, 103
	Amatols, see Explosives, blasting, type B												

	2-Amino-4-chlorophenol	6.1	UN2673	II	POISON		None	212	242	25 kg	100 kg	A	
	2-Amino-5-diethylaminopentane	6.1	UN2946	III	KEEP AWAY FROM FOOD.	T1	153	203	240	60 L	220 L	A	
	2-(2-Aminoethoxy) ethanol	8	UN3055	III	CORROSIVE	T2	154	203	241	5 L	60 L	A	
	N-Aminoethylpiperazine	8	UN2815	III	CORROSIVE	T7	154	203	241	5 L	60 L	A	12, 48
	Aminophenols (*o-; m-; p-*)	6.1	UN2512	III	KEEP AWAY FROM FOOD.	T1	153	213	240	100 kg	200 kg	A	
	Aminopropyldiethanolamine, see Alkylamines, n.o.s.												
	n-Aminopropylmorpholine, see Alkylamines, n.o.s.												
	Aminopyridines (*o-; m-; p-*)	6.1	UN2671	II	POISON	T7	None	212	242	25 kg	100 kg	B	12, 40, 48
I	Ammonia, anhydrous, liquefied *or* Ammonia solutions *relative density less than 0.880 at 15 degrees C in water, with more than 50 per cent ammonia.*	2.3	UN1005		POISON GAS	4	None	304	314, 315	Forbidden	25 kg	D	40, 57
D	Ammonia anhydrous liquefied or Ammonia solutions, *relative density less than 0.880 at 15 degrees C in water, with more than 50 percent ammonia.*	2.2	UN1005		NONFLAMMABLE GAS.	13	None	304	314, 315	Forbidden	25 kg	D	40, 57
	Ammonia solutions, *relative density between 0.880 and 0.957 at 15 degrees C in water, with more than 10 per cent but not more than 35 percent ammonia.*	8	UN2672	III	CORROSIVE	T14	154	203	241	5 L	60 L	A	40, 85
	Ammonia solutions, *relative density less than 0.880 at 15 degrees C in water, with more than 35 per cent but not more than 50 per cent ammonia.*	2.2	UN2073		NONFLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	E	40, 57
	Ammonium arsenate	6.1	UN1546	II	POISON		None	212	242	25 kg	100 kg	A	
	Ammonium azide	Forbidden											
	Ammonium bifluoride, solid, see Ammonium hydrogen fluoride, solid.												
	Ammonium bifluoride solution, see Ammonium hydrogen fluoride, solution.												
	Ammonium bromate	Forbidden											
	Ammonium chlorate	Forbidden											
	Ammonium dichromate	5.1	UN1439	II	OXIDIZER		152	212	242	5 kg	25 kg	A	
	Ammonium dinitro-o-cresolate	6.1	UN1843	II	POISON	T8	None	212	242	25 kg	100 kg	B	36, 65, 66, 77
	Ammonium fluoride	6.1	UN2505	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	26
	Ammonium fluorosilicate	6.1	UN2854	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	26
	Ammonium fulminate	Forbidden											
	Ammonium hydrogen fluoride, solid	8	UN1727	II	CORROSIVE	N34	154	212	240	15 kg	50 kg	A	25, 26, 40
	Ammonium hydrogen fluoride, solution	8	UN2817	II	CORROSIVE, POISON.	N34, T15	None	202	243	1 L	30 L	B	40, 95
	Ammonium hydrogen sulfate	8	UN2506	II	CORROSIVE		154	212	240	15 kg	50 kg	A	40
	Ammonium hydrosulfide, solution, see Ammonium sulfide solution.												
D	Ammonium hydroxide, *see* Ammonia solutions, *etc.*												
	Ammonium metavanadate	6.1	UN2859	II	POISON		None	212	242	25 kg	100 kg	A	
D	Ammonium nitrate fertilizers	5.1	NA2072	III	OXIDIZER	7	152	213	240	25 kg	100 kg	B	48, 59, 60, 117
AW	Ammonium nitrate fertilizers: *uniform non-segregating mixtures of nitrogen/phosphate or nitrogen/potash types or complete fertilizers of nitrogen/phosphate/potash type, with not more than 70 per cent ammonium nitrate and not more than 0.4 per cent total added combustible material or with not more than 45 per cent ammonium nitrate with unrestricted combustible material.*	9	UN2071	III	CLASS 9		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	EXPLOSIVE 1.5D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Ammonium nitrate, liquid (*hot concentrated solution*).	5.1	UN2426		OXIDIZER	B5, B17, T25	None	None	243	Forbidden	Forbidden	D	59, 60
D	Ammonium nitrate mixed fertilizers	5.1	NA2069	III	OXIDIZER	10	152	213	240	25 kg	100 kg	B	48, 59, 60, 117
	Ammonium nitrate, *with more than 0.2 per cent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance.*	1.1D	UN0222	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(6) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Ammonium nitrate, *with not more than 0.2 per cent of combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance.*	5.1	UN1942	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	48, 59, 60, 116
	Ammonium nitrite	Forbidden											
	Ammonium perchlorate	5.1	UN1442	II	OXIDIZER	A9	152	212	242	5 kg	25 kg	E	58, 69, 106
	Ammonium perchlorate	1.1D	UN0402	II	EXPLOSIVE 1.1D	107	None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Ammonium permanganate, see Permanganates, inorganic, n.o.s..												
	Ammonium persulfate	5.1	UN1444	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	
	Ammonium picrate, *dry or wetted with less than 10 per cent water, by mass.*	1.1D	UN0004	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Ammonium picrate, wetted *with not less than 10 per cent water, by mass.*	4.1	UN1310	I	FLAMMABLE SOLID	A2, N41	None	211	None	0.5 kg	0.5 kg	D	28, 36
	Ammonium polysulfide, solution	8	UN2818	II	CORROSIVE, POISON.	T14	None	202	243	1 L	30 L	B	12, 26, 40, 48, 95
	Ammonium polyvanadate	6.1	UN2861	II	POISON		None	212	242	25 kg	100 kg	A	
	Ammonium silicofluoride, see Ammonium fluorosilicate.												
	Ammonium sulfide solution	8	UN2683	II	CORROSIVE, POISON, FLAMMABLE LIQUID.	T14	None	202	243	1 L	30 L	B	12, 22, 26, 48, 100
	Ammunition, blank, see Cartridges for weapons, blank.												
	Ammunition, illuminating *with or without burster, expelling charge or propelling charge.*	1.2G	UN0171	II	EXPLOSIVE 1.2G		63(b)	62	None	Forbidden	Forbidden	B	
	Ammunition, illuminating *with or without burster, expelling charge or propelling charge.*	1.3G	UN0254	II	EXPLOSIVE 1.3G		63(b)	62	None	Forbidden	Forbidden	B	
	Ammunition, illuminating *with or without burster, expelling charge or propelling charge.*	1.4G	UN0297	II	EXPLOSIVE 1.4G		63(b)	62	None	Forbidden	75 kg	A	24E
	Ammunition, incendiary *liquid or gel, with burster, expelling charge or propelling charge.*	1.3J	UN0247	II	EXPLOSIVE 1.3J		63(b)	62	None	Forbidden	Forbidden	E	7E, 13E, 23E
	Ammunition, incendiary (water-activated contrivances) with burster, expelling charge or propelling charge, see Contrivances, water-activated, etc..												
	Ammunition, incendiary, white phosphorus, *with burster, expelling charge or propelling charge.*	1.2H	UN0243	II	EXPLOSIVE 1.2H		63(b)	62	None	Forbidden	Forbidden	E	8E, 14E, 15E
	Ammunition, incendiary, white phosphorus, *with burster, expelling charge or propelling charge.*	1.3H	UN0244	II	EXPLOSIVE 1.3H		63(b)	62	None	Forbidden	Forbidden	E	8E, 14E, 15E
	Ammunition, incendiary *with or without burster,expelling charge, or propelling charge.*	1.2G	UN0009	II	EXPLOSIVE 1.2G		63(b)	62	None	Forbidden	Forbidden	B	
	Ammunition, incendiary *with or without burster, expelling charge, or propelling charge.*	1.3G	UN0010	II	EXPLOSIVE 1.3G		63(b)	62	None	Forbidden	Forbidden	B	
	Ammunition, incendiary *with or without burster, expelling charge or propelling charge.*	1.4G	UN0300	II	EXPLOSIVE 1.4G		63(b)	62	None	Forbidden	75 kg	A	24E
	Ammunition, practice	1.4G	UN0362	II	EXPLOSIVE 1.4G		63(b)	62	None	Forbidden	75 kg	A	24E
	Ammunition, practice	1.3G	UN0488	II	EXPLOSIVE 1.3G		63(b)	62	None	Forbidden	Forbidden	B	1E, 7E, 25E
	Ammunition, proof	1.4G	UN0363	II	EXPLOSIVE 1.4G		63(b)	62	None	Forbidden	75 kg	A	24E
	Ammunition, rocket, see Warheads, rocket *etc.*												
	Ammunition, SA (small arms), see Cartridges for weapons, *etc.*.												

	Ammunition, smoke (water-activated contrivances), white phosphorus, with burster, expelling charge or propelling charge, see Contrivances, water-activated, *etc. (UN 0248).*												
	Ammunition, smoke (water-activated contrivances), without white phosphorus or phosphides, with burster, expelling charge or propelling charge, see Contrivances, water-activated, *etc. (UN 0249).*												
	Ammunition, smoke, white phosphorus *with burster, expelling charge, or propelling charge.*	1.3H	UN0248	II	EXPLOSIVE 1.3H		63(b)	62	None	Forbidden	Forbidden	E	8E, 14E, 15E, 17E
	Ammunition smoke, white phosphorus *with burster,expelling charge, or propelling charge.*	1.2H	UN0245	II	EXPLOSIVE 1.2H		63(b)	62	None	Forbidden	Forbidden	E	8E, 14E, 15E, 17E
	Ammunition, smoke *with or without burster, expelling charge or propelling charge.*	1.3G	UN0016	II	EXPLOSIVE 1.3G, CORROSIVE.		63(b)	62	None	Forbidden	Forbidden	E	20E
	Ammunition, smoke *with or without burster, expelling charge or propelling charge.*	1.4G	UN0303	II	EXPLOSIVE 1.4G, CORROSIVE.		63(b)	62	None	Forbidden	75 kg	E	20E
	Ammunition, smoke *with or without burster, expelling charge or propelling charge.*	1.2G	UN0015	II	EXPLOSIVE 1.2G, CORROSIVE.		63(b)	62	None	Forbidden	Forbidden	E	20E
	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	POISON, CORROSIVE.		None	212	None	Forbidden	50 kg	E	13, 40
	Ammunition, tear-producing *with burster, expelling charge or propelling charge.*	1.2G	UN0018	II	EXPLOSIVE 1.2G, CORROSIVE, POISON.		63(b)	62	None	Forbidden	Forbidden	E	20E
	Ammunition, tear-producing *with burster, expelling charge or propelling charge.*	1.3G	UN0019	II	EXPLOSIVE 1.3G, CORROSIVE, POISON.		63(b)	62	None	Forbidden	Forbidden	E	20E
	Ammunition, tear-producing *with burster, expelling charge or propelling charge.*	1.4G	UN0301	II	EXPLOSIVE 1.4G, CORROSIVE, POISON.		63(b)	62	None	Forbidden	75 kg	E	20E
	Ammunition, toxic, nonexplosive, *without burster or expelling charge, non-fuzed.*	6.1	UN2016	II	POISON		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.*												
	Ammunition, toxic *with burster, expelling charge, or propelling charge.*	1.2K	UN0020	II	EXPLOSIVE 1.2K, POISON.		63(b)	62	None	Forbidden	Forbidden	E	2E, 8E, 11E, 17E
	Ammunition, toxic *with burster, expelling charge, or propelling charge.*	1.3K	UN0021	II	EXPLOSIVE 1.3K, POISON.		63(b)	62	None	Forbidden	Forbidden	E	2E, 8E, 11E, 17E
	Amyl acetates	3	UN1104	III	FLAMMABLE LIQUID	B1, T1	150	203	241	60 L	220 L	A	
	Amyl acid phosphate	8	UN2819	III	CORROSIVE	T7	154	203	241	5 L	60 L	A	
	Amyl alcohols	3	UN1105	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, B3, T1	150	203	242	60 L	220 L	A	
	Amyl butyrates	3	UN2620	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Amyl chlorides	3	UN1107	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Amyl formates	3	UN1109	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Amyl mercaptans	3	UN1111	II	FLAMMABLE LIQUID	A3, T8	None	202	242	5 L	60 L	B	95, 102
	Amyl methyl ketone	3	UN1110	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Amyl nitrate	3	UN1112	III	FLAMMABLE LIQUID	B1, T1	150	202	242	5 L	60 L	A	40
	Amyl nitrites	3	UN1113	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	40
	Amylamines	3	UN1106	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	n-Amylene	3	UN1108	I	FLAMMABLE LIQUID	T14	150	201	243	1 L	30 L	E	
	Amyltrichlorosilane	8	UN1728	II	CORROSIVE	A7, B2, B6, N34, T8, T26.	None	202	242	Forbidden	30 L	C	40
	Anhydrous, ammonia *see Ammonia, anhydrous, liquefied.*												
	Anhydrous hydrofluoric acid, see Hydrogen fluoride, anhydrous.												
+	Aniline	6.1	UN1547	II	POISON	T8	None	202	243	5 L	60 L	A	40
	Aniline hydrochloride	6.1	UN1548	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Aniline oil, see Aniline.												
	Anisidines	6.1	UN2431	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	A	
	Anisole	3	UN2222	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Anisoyl chloride	8	UN1729	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	C	8, 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	I	POISON	A4, T42	None	201	243	1 L	30 L	A	
				II	POISON	T14	None	202	243	5 L	60 L	A	
				III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	Antimony compounds, inorganic, solid, n.o.s.	6.1	UN1549	I	POISON		None	211	242	5 kg	50 kg	A	
				II	POISON		None	212	242	25 kg	100 kg	A	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Antimony lactate	6.1	UN1550	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Antimony pentachloride, liquid	8	UN1730	II	CORROSIVE	B2, T8, T26	None	202	242	1 L	30 L	C	8, 40
	Antimony pentachloride, solutions	8	UN1731	II	CORROSIVE	B2, T8, T27	154	202	242	1 L	30 L	C	8, 40
	Antimony pentafluoride	8	UN1732	II	CORROSIVE, POISON.	A3, A6, A7, A10, N3, T12, T26.	None	202	243	Forbidden	30 L	D	40, 95
	Antimony potassium tartrate	6.1	UN1551	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Antimony powder	6.1	UN2871	III	KEEP AWAY FROM FOOD.		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.												
D	Antimony tribromide, solid	8	NA1549	II	CORROSIVE		154	212	240	25 kg	100 kg	A	13
D	Antimony tribromide, solution	8	NA1549	II	CORROSIVE	B2	154	202	242	1 L	30 L	C	13
	Antimony trichloride, liquid	8	UN1733	II	CORROSIVE	B2	154	202	242	1 L	30 L	C	40
	Antimony trichloride, solid	8	UN1733	II	CORROSIVE		154	212	240	15 kg	50 kg	A	40
D	Antimony trifluoride, solid	8	NA1549	II	CORROSIVE		154	212	240	25 kg	25 kg	A	13
D	Antimony trifluoride solution	8	NA1549	II	CORROSIVE	B2	154	202	242	1 L	30 L	C	13
	Aqua ammonia, see Ammonia solution, *etc.*												
	Argon, compressed	2.2	UN1006		NONFLAMMABLE GAS.		306	302	314, 315	75 kg	150 kg	A	
	Argon, refrigerated liquid (*cryogenic liquid*)	2.2	UN1951		NONFLAMMABLE GAS.		320	316	318	50 kg	500 kg	B	
	Arsenic	6.1	UN1558	II	POISON		None	212	242	25 kg	100 kg	A	
	Arsenic acid, liquid	6.1	UN1553	I	POISON	T18, T27	None	201	243	1 L	30 L	B	
	Arsenic acid, solid	6.1	UN1554	II	POISON		None	212	242	25 kg	100 kg	A	
	Arsenic bromide	6.1	UN1555	II	POISON		None	212	242	25 kg	100 kg	A	12, 40
	Arsenic chloride, see Arsenic trichloride												
	Arsenic compounds, liquid, n.o.s. *including arsenates n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.*	6.1	UN1556	I	POISON		None	201	243	1 L	30 L	B	40
				II	POISON		None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	B	40
	Arsenic compounds, solid, n.o.s. *including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.*	6.1	UN1557	I	POISON		None	211	242	5 kg	50 kg	A	
				II	POISON		None	212	242	25 kg	100 kg	A	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Arsenic pentoxide	6.1	UN1559	II	POISON		None	212	242	25 kg	100 kg	A	

D	Arsenic sulfide	6.1	NA1557	II	POISON		None	212	242	25 kg	100 kg	A	
	Arsenic sulfide and a chlorate, mixtures of	Forbidden											
	Arsenic trichloride	6.1	UN1560	I	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	1L	30L	B	40
	Arsenic trioxide	6.1	UN1561	II	POISON		None	212	242	25 kg	100 kg	A	
D	Arsenic trisulfide	6.1	NA1557	II	POISON		None	212	242	25 kg	100 kg	A	
	Arsenic, white, solid, see Arsenic trioxide												
	Arsenical dust	6.1	UN1562	II	POISON		None	212	242	25 kg	100 kg	A	
	Arsenical pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2760	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	40
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	40
	Arsenical pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN2993	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	241	60 L	220 L	A	40
	Arsenical pesticides, liquid, toxic, n.o.s.	6.1	UN2994	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Arsenical pesticides, solid, toxic, n.o.s.	6.1	UN2759	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Arsenious acid, solid, see Arsenic trioxide												
	Arsenious and mercuric iodids solution, see Arsenic compounds, liquid, n.o.s.												
	Arsine	2.3	UN2188		POISON GAS, FLAMMABLE GAS.	1	None	192	245	Forbidden	Forbidden	D	40
	Articles, explosive, extremely insensitive *or* Articles, EEI.	1.6N	UN0486	II	EXPLOSIVE 1.6N	101	None	62	None	Forbidden	Forbidden	B	
	Articles, explosive, n.o.s.	1.4S	UN0349	II	EXPLOSIVE 1.4S	101	None	62	None	25 kg	100 kg	A	9E
	Articles, explosive, n.o.s.	1.4B	UN0350	II	EXPLOSIVE 1.4B	101	None	62	None	Forbidden	Forbidden	A	24E
	Articles, explosive, n.o.s.	1.4C	UN0351	II	EXPLOSIVE 1.4C	101	None	62	None	Forbidden	Forbidden	A	24E
	Articles, explosive, n.o.s.	1.4D	UN0352	II	EXPLOSIVE 1.4D	101	None	62	None	Forbidden	Forbidden	A	24E
	Articles, explosive, n.o.s.	1.4G	UN0353	II	EXPLOSIVE 1.4G	101	None	62	None	Forbidden	Forbidden	A	24E
	Articles, explosive, n.o.s.	1.1L	UN0354	II	EXPLOSIVE 1.1L	101	None	62	None	Forbidden	Forbidden	E	2E, 8E, 17E
	Articles, explosive, n.o.s.	1.2L	UN0355	II	EXPLOSIVE 1.2L	101	None	62	None	Forbidden	Forbidden	E	2E, 8E, 17E
	Articles, explosive, n.o.s.	1.3L	UN0356	II	EXPLOSIVE 1.3L	101	None	62	None	Forbidden	Forbidden	E	2E, 8E, 17E
	Articles, explosive, n.o.s.	1.1C	UN0462	II	EXPLOSIVE 1.1C	101	None	62	None	Forbidden	Forbidden	B	
	Articles, explosive, n.o.s.	1.1D	UN0463	II	EXPLOSIVE 1.1D	101	None	62	None	Forbidden	Forbidden	B	
	Articles, explosive, n.o.s.	1.1E	UN0464	II	EXPLOSIVE 1.1E	101	None	62	None	Forbidden	Forbidden	B	
	Articles, explosive, n.o.s.	1.1F	UN0465	II	EXPLOSIVE 1.1F	101	None	62	None	Forbidden	Forbidden	E	
	Articles, explosive, n.o.s.	1.2C	UN0466	II	EXPLOSIVE 1.2C	101	None	62	None	Forbidden	Forbidden	B	
	Articles, explosive, n.o.s.	1.2D	UN0467	II	EXPLOSIVE 1.2D	101	None	62	None	Forbidden	Forbidden	B	
	Articles, explosive, n.o.s.	1.2E	UN0468	II	EXPLOSIVE 1.2E	101	None	62	None	Forbidden	Forbidden	B	
	Articles, explosive, n.o.s.	1.2F	UN0469	II	EXPLOSIVE 1.2F	101	None	62	None	Forbidden	Forbidden	E	
	Articles, explosive, n.o.s.	1.3C	UN0470	II	EXPLOSIVE 1.3C	101	None	62	None	Forbidden	Forbidden	B	
	Articles, explosive, n.o.s.	1.4E	UN0471	II	EXPLOSIVE 1.4E	101	None	62	None	Forbidden	75kg	A	24E
	Articles, explosive, n.o.s.	1.4F	UN0472	II	EXPLOSIVE 1.4F	101	None	62	None	Forbidden	Forbidden	E	
	Articles, pyrophoric	1.2L	UN0380	II	EXPLOSIVE 1.2L		None	62	None	Forbidden	Forbidden	E	2E, 8E, 17E
	Articles, pyrotechnic *for technical purposes*	1.1G	UN0428	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	
	Articles, pyrotechnic *for technical purposes*	1.2G	UN0429	II	EXPLOSIVE 1.2G		None	62	None	Forbidden	Forbidden	B	
	Articles, pyrotechnic *for technical purposes*	1.3G	UN0430	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	Forbidden	B	
	Articles, pyrotechnic *for technical purposes*	1.4G	UN0431	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E
	Articles, pyrotechnic *for technical purposes*	1.4S	UN0432	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	Asbestos, blue or brown, see Blue asbestos *etc.*												
	Asbestos, white, see White asbestos *etc.*												

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Ascaridole (organic peroxide)	Forbidden											
D	Asphalt, *at or above its flashpoint*	3	NA1999	III	None	B1	150	203	242	Forbidden	Forbidden	D	
D	Asphalt, cut back, *see* Tars, liquid, *etc.*												
	Automobile, motorcycle, tractor, or other self-propelled vehicle, engine, or other mechanical apparatus, see Vehicles, self-propelled												
	Azidic acid (salt of) (dry)	Forbidden											
	Azido guanidine picrate (dry)	Forbidden											
	5-Azido-1-hydroxy tetrazole	Forbidden											
	Azido hydroxy tetrazole (mercury and silver salts)	Forbidden											
	Azido hydroxy tetrazole (mercury and silver salts)	Forbidden											
	3-Azido-1,2-Propylene glycol dinitrate	Forbidden											
	Azidodithiocarbonic acid	Forbidden											
	Azidoethyl nitrate	Forbidden											
	1-Aziridinyl phosphine oxide-(tris), see Tris-(1-aziridinyl) phosphine oxide, solution.												
	2,2'-Azodi-(2,4-dimethyl-4-methoxyvaleronitrile	4.1	UN2955	II	FLAMMABLE SOLID		None	224	None	Forbidden	Forbidden	D	2
	2,2'-Azodi-(2,4 dimethylvaleronitrile)	4.1	UN2953	II	FLAMMABLE SOLID		None	224	None	Forbidden	Forbidden	D	2
	1,1'-Azodi-(hexahydrobenzonitrile)	4.1	UN2954	II	FLAMMABLE SOLID		None	224	None	15 kg	50 kg	B	12, 61, 95
	2,2'-Azodi (2-methyl-butyronitrile)	4.1	UN3030	II	FLAMMABLE SOLID		None	224	None	Forbidden	Forbidden	D	2, 61
	Azodiisobutyronitrile	4.1	UN2952	II	FLAMMABLE SOLID, EXPLOSIVES.	41, 53	None	224	None	Forbidden	Forbidden	D	2
	Azotetrazole (dry)	Forbidden											
	Barium	4.3	UN1400	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	E	
	Barium alloys, pyrophoric	4.2	UN1854	I	SPONTANEOUSLY COMBUSTIBLE.		None	181	None	Forbidden	Forbidden	D	
	Barium azide, *dry or wetted with less than 50 per cent water, by mass.*	1.1A	UN0224	II	EXPLOSIVE 1.1A, Poison.	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E
	Barium azide, wetted *with not less than 50 per cent water, by mass.*	4.1	UN1571	I	FLAMMABLE SOLID, POISON.	A2	None	182	None	Forbidden	0.5 kg	D	28, 36
	Barium bromate	5.1	UN2719	II	OXIDIZER, POISON		None	212	242	5 kg	25 kg	A	56, 58, 106
	Barium chlorate	5.1	UN1445	II	OXIDIZER, POISON	A9, N34, T8	None	212	242	5 kg	25 kg	A	56, 58, 106
	Barium compounds, n.o.s.	6.1	UN1564	I	POISON		None	211	242	5 kg	50 kg	A	
				II	POISON		None	212	242	25 kg	100 kg	A	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Barium cyanide	6.1	UN1565	I	POISON	N74, N75	None	211	242	5 kg	50 kg	A	26, 40
	Barium hypochlorite *with more than 22 per cent available chlorine.*	5.1	UN2741	II	OXIDIZER	A7, A9, N34	152	212	None	5 kg	25 kg	B	56, 58, 106
	Barium nitrate	5.1	UN1446	II	OXIDIZER, POISON		None	212	242	5 kg	25 kg	A	
	Barium oxide	6.1	UN1884	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Barium perchlorate	5.1	UN1447	II	OXIDIZER, POISON	T8	None	212	242	5 kg	25 kg	A	56, 58, 106
	Barium permanganate	5.1	UN1448	II	OXIDIZER, POISON		None	212	242	5 kg	25 kg	D	56, 58, 69, 106, 107
	Barium peroxide	5.1	UN1449	II	OXIDIZER, POISON		None	212	2	5 kg	25 kg	A	13, 75, 106
	Barium selenate, *see* Selenates or Selenites												
	Barium selenite, *see* Selenates or Selenites												
D	Barium styphnate	1.1A	NA0473	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E

	Batteries, dry, containing potassium hydroxide solid, *electric, storage.*	8	UN3028	III	CORROSIVE		None	213	None	25 kg gross.	230 kg gross.	A		
	Batteries, wet, filled with acid, *electric storage*	8	UN2794	III	CORROSIVE		159	159	None	25 kg gross.	No limit	A		
	Batteries, wet, filled with alkali, *electric storage*	8	UN2795	III	CORROSIVE		159	159	None	25 kg gross.	No limit	A		
AW	Batteries, wet, non-spillable, *electric storage*	8	UN2800	III	CORROSIVE		159	159	None	No Limit	No Limit	A		
	Battery fluid, acid	8	UN2796	II	CORROSIVE	A3, A7, B2, B15, N6, N34, T9, T27.	154	202	242	1 L	30 L	B		
	Battery fluid, alkali	8	UN2797	II	CORROSIVE	B2, N6, T8	154	202	242	1 L	30 L	A		
	Battery lithium type, see Lithium batteries *etc.*													
	Battery, wet, filled with acid or alkali with automobile (or named self-propelled vehicle or mechanical equipment containing internal combustion engine) see Vehicles, self-propelled *etc.*													
	Battery, wet, with wheelchair, see Wheelchair, electric.													
	Benzene	3	UN1114	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40	
	Benzene diazonium chloride (dry)	Forbidden												
	Benzene diazonium nitrate (dry)	Forbidden												
	Benzene-1,3-disulfohydrazide, *not more than 52 per cent as a paste.*	4.1	UN2971	II	FLAMMABLE SOLID		None	224	None	15 kg	50 kg	B	12, 61, 85	
	Benzene phosphorus dichloride, see Phenyl phosphorus dichloride.													
	Benzene phosphorus thiodichloride, see Phenyl phosphorus thiodichloride.													
	Benzene sulfohydrazide	4.1	UN2970	II	FLAMMABLE SOLID		None	224	None	15 kg	50 kg	B	12, 61, 85	
	Benzene sulfonyl chloride	8	UN2225	III	CORROSIVE	T8	154	203	241	5 L	60 L	A	40	
	Benzene triozonide	Forbidden												
	Benzenethiol, see Phenyl mercaptan													
	Benzidine	6.1	UN1885	II	POISON		None	212	242	25 kg	100 kg	A		
	Benzoic derivative pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2770	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	E		
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B		
	Benzoic derivative pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3003	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40	
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40	
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	T14	153	203	241	60 L	220 L	A	40	
	Benzoic derivative pesticides, liquid, toxic, n.o.s.	6.1	UN3004	I	POISON	T42	None	201	243	1 L	30 L	B	40	
				II	POISON	T14	None	202	243	5 L	60 L	B	40	
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40	
	Benzoic derivative pesticides, solid, toxic, n.o.s.	6.1	UN2769	I	POISON		None	211	242	5 kg	50 kg	A	40	
				II	POISON		None	212	242	25 kg	100 kg	A		
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A		
	Benzol, see Benzene													
	Benzonitrile	6.1	UN2224	II	POISON	T14	None	202	243	5 L	60 L	A	26, 40	
	Benzoquinone	6.1	UN2587	II	POISON		None	212	242	25 kg	100 kg	A		
	Benzotrichloride	8	UN2226	II	CORROSIVE	B2, T15	154	202	242	1 L	30 L	A	40	
	Benzotrifluoride	3	UN2338	II	FLAMMABLE LIQUID	T2	150	202	242	5 L	60 L	B	40	
	Benzotriazoles (dry)	Forbidden												
	Benzoyl azide	Forbidden												
	Benzoyl chloride	8	UN1736	II	CORROSIVE	B2, T9, T26	154	202	242	1 L	30 L	C	8, 40	
	Benzyl bromide	6.1	UN1737	II	POISON, CORROSIVE.	A3, A7, N33, N34, T12, T26.	None	202	243	1 L	30 L	D	13, 40	
	Benzyl chloride	6.1	UN1738	II	POISON, CORROSIVE.	A3, A7, B41, B70, N33, N43, T12, T26.	None	202	243	1 L	30 L	D	13, 40	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Benzyl chloride *unstabilized*	6.1	UN1738	II	POISON, CORROSIVE	A3, A7, B6, B11, N33, N34, N43, T12, T26.	None	202	243	1 L	30 L	D	13, 20
	Benzyl chloroformate	8	UN1739	I	CORROSIVE	A3, A6, B4, N41, T16, T26.	None	201	242	Forbidden	2.5 L	D	40
	4-(Benzyl(ethyl)amino)-3-ethoxybenzenediazonium zinc chloride.	4.1	UN3037	II	FLAMMABLE SOLID		None	224	None	Forbidden	Forbidden	D	2
	Benzyl iodide	6.1	UN2653	II	POISON	T8	None	202	243	5 L	60 L	B	12, 40, 48
	4-(Benzyl(methyl)amino)3-ethoxybenzenediazonium zinc chloride.	4.1	UN3038	II	FLAMMABLE SOLID		None	224	None	Forbidden	Forbidden	D	2
	Benzyldimethylamine	8	UN2619	II	CORROSIVE	B2, T1	154	202	242	1 L	30 L	A	12, 21, 40, 48
	Benzylidene chloride	6.1	UN1886	II	POISON	T8	None	202	243	5 L	60 L	D	40
	Beryllium compounds, n.o.s.	6.1	UN1566	II	POISON		None	212	242	25 kg	100 kg	A	
	Beryllium nitrate	5.1	UN2464	II	OXIDIZER, POISON		None	212	242	5 kg	25 kg	A	
	Beryllium, powder	6.1	UN1567	II	POISON, FLAMMABLE SOLID.		None	212	242	15 kg	50 kg	A	
	Bifluorides, n.o.s. *solid*	8	UN1740	II	CORROSIVE	N3, N34	None	212	240	15 kg	50 kg	A	25, 26, 40
	Bifluorides, n.o.s. *solutions*	8	UN1740	II	CORROSIVE	N3, N34	None	202	243	1 L	30 L	A	25, 26, 40
	Biphenyl triazonide	Forbidden											
	Bipyridilium pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2782	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	E	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Bipyridilium pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3015	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	21, 40, 48
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	21, 40, 48
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	242	60 L	220 L	A	21, 40, 48
	Bipyridilium pesticides, liquid, toxic, n.o.s.	6.1	UN3016	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Bipyridilium pesticides, solid, toxic, n.o.s.	6.1	UN2781	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	bis (Aminopropyl) piperazine, see Corrosive liquid, n.o.s.												
	Bisulfites, inorganic, aqueous solutions, n.o.s.	8	UN2693	III	CORROSIVE	T8	154	203	241	1 L	30 L	A	8, 26, 40
	Black powder, compressed *or* Gunpowder, compressed *or* Black powder, in pellets *or* Gunpowder, in pellets.	1.1D	UN0028	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Black powder *or* Gunpowder, *granular or as a meal*	1.1D	UN0027	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	10E, 26E
	Blasting agent, n.o.s., see Explosives, blasting *etc.*												
	Blasting cap assemblies, see Detonator assemblies, non-electric, *for blasting.*												
	Blasting caps, electric, see Detonators, electric *for blasting.*												
	Blasting caps, non-electric, see Detonators, non-electric, *for blasting.*												

	Bleaching powder, see Calcium hypochlorite mixtures, *etc.*													
	Blue Asbestos (*Crocidolite*) *or* Brown asbestos (*amosite, mysorite*).	9	UN2212	II	CLASS 9		155	215	240	Forbidden	Forbidden	A	34, 40	
	Bombs, photo-flash	1.1F	UN0037	II	EXPLOSIVE 1.1F		63(b)	62	None	Forbidden	Forbidden	E		
	Bombs, photo-flash	1.1D	UN0038	II	EXPLOSIVE 1.1D		63(b)	62	None	Forbidden	Forbidden	B		
	Bombs, photo-flash	1.2G	UN0039	II	EXPLOSIVE 1.2G		63(b)	62	None	Forbidden	Forbidden	B		
	Bombs, photo-flash	1.3G	UN0299	II	EXPLOSIVE 1.3G		63(b)	62	None	Forbidden	Forbidden	B		
	Bombs, smoke, non-explosive, *with corrosive liquid, without initiating device.*	8	UN2028	II	CORROSIVE		None	160	None	Forbidden	50 kg	E	40	
	Bombs, *with bursting charge*	1.1F	UN0033	II	EXPLOSIVE 1.1F		63(b)	62	None	Forbiden	Forbidden	E		
	Bombs, *with bursting charge*	1.1D	UN0034	II	EXPLOSIVE 1.1D		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E	
	Bombs, *with bursting charge*	1.2D	UN0035	II	EXPLOSIVE 1.2D		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E	
	Bombs, *with bursting charge*	1.2F	UN0291	II	EXPLOSIVE 1.2F		63(b)	62	None	Forbidden	Forbidden	E		
	Bombs with flammable liquid, *with bursting charge*	1.1J	UN0399	II	EXPLOSIVE 1.1J		63(b)	62	None	Forbidden	Forbidden	E	7E, 16E, 23E	
	Bombs with flammable liquid, *with bursting charge*	1.2J	UN0400	II	EXPLOSIVE 1.2J		63(b)	62	None	Forbidden	Forbidden	E	7E, 16E, 23E	
	Boosters with detonator	1.1B	UN0225	II	EXPLOSIVE 1.1B		None	62	None	Forbidden	Forbidden	B	2E, 6E	
	Boosters with detonator	1.2B	UN0268	II	EXPLOSIVE 1.2B		None	62	None	Forbidden	Forbidden	E	1E, 7E	
D	Boosters with detonator	1.4B	NA0350	II	EXPLOSIVE 1.4B	115	None	62	None	Forbidden	75 kg	A	24E	
	Boosters, *without detonator*	1.1D	UN0042	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		
	Boosters, *without detonator*	1.2D	UN0283	II	EXPLOSIVE 1.2D		None	62	None	Forbidden	Forbidden	B		
	Borate and chlorate mixtures, see Chlorate and borate mixtures.													
	Borneol	4.1	UN1312	III	FLAMMABLE SOLID	A1	None	213	240	25 kg	100 kg	A		
+	Boron tribromide	8	UN2692	I	CORROSIVE, POISON.	2, A3, A7, B9, B14, B32, B74, N34, T38, T43, T45.	None	227	244	Forbidden	2.5 L	C	12	
	Boron trichloride	2.3	UN1741		POISON GAS, CORROSIVE.	1, B9, B14	None	304	314	Forbidden	Forbidden	E	25, 40	
	Boron trifluoride	2.3	UN1008		POISON GAS	2, B9, B14	None	302	314, 315	Forbidden	Forbidden	D	40	
	Boron trifluoride acetic acid complex	8	UN1742	II	CORROSIVE	B2, B6, T9, T27.	154	202	242	1 L	30 L	A		
	Boron trifluoride diethyl etherate	8	UN2604	I	CORROSIVE, FLAMMABLE LIQUID.	A19, T8, T26	None	202	243	0.5 L	2.5 L	D	12, 21, 40, 48	
	Boron trifluoride dihydrate	8	UN2851	II	CORROSIVE	T9, T27	154	212	240	35 kg	50 kg	B	12, 40, 48	
	Boron trifluoride dimethyl etherate	4.3	UN2965	II	DANGEROUS WHEN WET, CORROSIVE, FLAMMABLE LIQUID.	A19, T8, T26	None	202	243	1 L	5 L	D	21, 28, 40, 49, 100	
	Boron trifluoride propionic acid complex	8	UN1743	II	CORROSIVE	B2, T9, T27	154	202	242	1 L	30 L	A		
	Box toe gum, see Nitrocellulose *etc.*													
	Brake fluid, *hydraulic*	3	UN1118	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B		
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A		
	Bromates, inorganic, n.o.s.	5.1	UN1450	II	OXIDIZER		152	212	242	5 kg	25 kg	A	56, 58, 106	
	Bromine azide	Forbidden												
+	Bromine *or* Bromine solutions	8	UN1744	I	CORROSIVE, POISON.	1, A3, A6, B9, B12, B31, B64, B73, B85, N34, N43, T18, T41.	None	226	249	Forbidden	2.5 L	D	12, 40, 66, 74, 89, 90, 95	
	Bromine chloride	2.3	UN2901		POISON GAS, CORROSIVE, OXIDIZER.	2, B9, B12, B14.	None	304	314, 315	Forbidden	Forbidden	D	40, 89, 90	
+	Bromine pentafluoride	5.1	UN1745	I	OXIDIZER, POISON, CORROSIVE.	1, B9, B14, B30, B72, T38, T43, T44.	None	228	244	Forbidden	Forbidden	D	25, 40, 66, 90	
+	Bromine trifluoride	5.1	UN1746	I	OXIDIZER, POISON, CORROSIVE.	2, B9, B14, B32, B74, T38, T43, T45.	None	228	244	Forbidden	Forbidden	D	25, 40, 66, 90	
	4-Bromo-1,2-dinitrobenzene	Forbidden												
	4-Bromo-1,2-dinitrobenzene (unstable at 59 deg C.)	Forbidden												
	1-Bromo-3-methylbutane	3	UN2341	III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A		

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	1-Bromo-3-nitrobenzene (unstable at 56 deg C)	Forbidden											
	Bromoacetic acid, *solid*	8	UN1938	II	CORROSIVE	A7, N34, T9	154	212	240	15 kg	50 kg	A	
	Bromoacetic acid, *solution*	8	UN1938	II	CORROSIVE	B2, T9	154	202	242	1 L	30 L	A	40
+	Bromoacetone	6.1	UN1569	II	POISON	2	None	193	245	Forbidden	Forbidden	D	40
	Bromoacetyl bromide	8	UN2513	II	CORROSIVE	B2, T9, T26	154	202	242	1 L	30 L	C	8
	Bromobenzene	3	UN2514	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Bromobenzyl cyanides, *liquid*	6.1	UN1694	I	POISON	T18	None	201	243	Forbidden	30 L	D	12, 40
	Bromobenzyl cyanides, *solid*	6.1	UN1694	I	POISON	T18	None	211	241	Forbidden	50 kg	D	12, 40
	2-Bromobutane	3	UN2339	II	FLAMMABLE LIQUID	B1, T1	150	202	242	5 L	60 L	B	40
	Bromochloromethane	6.1	UN1887	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	2-Bromoethyl ethyl ether	3	UN2340	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	40
	Bromoform	6.1	UN2515	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	12, 40, 48
	Bromomethylpropanes	3	UN2342	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B	
	2-Bromopentane	3	UN2343	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	2-Bromopropane	3	UN2344	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	40
	3-Bromopropyne	3	UN2345	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	D	40
	Bromosilane	Forbidden											
	Bromotoluene-alpha, see Benzyl bromide												
	Bromotrifluoroethylene	2.1	UN2419		FLAMMABLE GAS		None	304	314, 315	Forbidden	150 kg	B	40
	Bromotrifluoromethane, *R1381*	2.2	UN1009		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
	Brucine	6.1	UN1570	I	POISON		None	212	242	5 kg	50 kg	A	
	Bursters, *explosive*	1.1D	UN0043	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	
	Butadienes, inhibited	2.1	UN1010		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40
	Butane *or* Butane mixtures *see also* Petroleum gases, liquefied.	2.1	UN1011		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	E	40
	Butane, butane mixtures and mixtures having similar properties in cartridges each not exceeding 500 grams, see Receptacles, *etc.*												
	Butanedione	3	UN2346	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	1,2,4-Butanetriol trinitrate	Forbidden											
	Butanols	3	UN1120	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	tert-Butoxycarbonyl azide	Forbidden											
	Butoxyl	3	UN2708	III	FLAMMABLE LIQUID	B1, T1	150	203	241	60 L	220 L	A	
	Butyl acetates	3	UN1123	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T1	150	202	241	60 L	220 L	A	
	Butyl acid phosphate	8	UN1718	III	CORROSIVE	T7	154	203	241	5 L	60 L	A	
	Butyl alcohols, see Butanols												
	Butyl benzenes	3	UN2709	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	n-Butyl bromide	3	UN1126	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	n-Butyl chloride, see Chlorobutanes												
	n-Butyl chloroformate	6.1	UN2743	I	POISON, CORROSIVE.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	1 L	30 L	A	12, 13, 22, 25, 40, 48, 100
D	sec-Butyl chloroformate	6.1	NA2742	I	POISON, FLAMMABLE LIQUID, CORROSIVE.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	1 L	30 L	A	12, 13, 22, 25, 40, 48, 100
	Butyl ethers, see Dibutyl ethers												
	Butyl ethyl ether, see Ethyl butyl ether												

	n-Butyl formate	3	UN1128	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	tert-Butyl hydroperoxide, more than 90 per cent with water.	Forbidden											
	N-n-Butyl imidazole	6.1	UN2690	II	POISON	T8	None	202	243	5 L	60 L	A	40
+	Tert-Butyl isocyanate	3	UN2484	I	FLAMMABLE LIQUID, POISON.	1, A7, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	30 L	D	40
+	n-Butyl isocyanate	3	UN2485	II	FLAMMABLE LIQUID, POISON.	1; A7, B9, B14, B30, B72, B77, T38, T43, T44.	None	226	244	Forbidden	60 L	D	40
	Butyl mercaptans	3	UN2347	II	FLAMMABLE LIQUID	A3, T8	150	202	242	5 L	60 L	B	26, 95, 102
	n-Butyl methacrylate	3	UN2227	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Butyl methyl ether	3	UN2350	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Butyl nitrites	3	UN2351	I	FLAMMABLE LIQUID	T8	150	202	242	1 L	30 L	E	40
				II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40
				III	FLAMMABLE LIQUID	B1, T8	150	202	242	60 L	220 L	A	40
	tert-Butyl peroxyacetate, more than 76 per cent in solution.	Forbidden											
	n-Butyl peroxydicarbonate, more than 52 percent in solution.	Forbidden											
	tert-Butyl peroxyisobutyrate, more than 77 per cent in solution.	Forbidden											
	Butyl phosphoric acid, see Butyl acid phosphate												
	5-tert-Butyl-2,4,6-trinitro-m-xylene *or* Musk xylene	4.1	UN2956	III	FLAMMABLE SOLID		None	214	None	Forbidden	Forbidden	D	12
	Butyl vinyl ether, inhibited	3	UN2352	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	40
	Butylacrylate	3	UN2348	III	FLAMMABLE LIQUID	B1, T8, T31	150	202	241	60 L	220 L	A	
	n-Butylamine	3	UN1125	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40
	N-Butylaniline	6.1	UN2738	II	POISON	T8	None	202	243	5 L	60 L	A	40
	tert-Butylcyclohexylchloroformate	6.1	UN2747	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	A	12, 13, 25, 48
	Butylene *see also* Petroleum gases, liquefied	2.1	UN1012		FLAMMABLE GAS		None	304	314, 315	Forbidden	150 kg	E	40
	1,2-Butylene oxide, stabilized	3	UN3022	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	49
	Butylphenols, liquid	6.1	UN2228	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	Butylphenols, solid	6.1	UN2229	III	KEEP AWAY FROM FOOD.	T7	153	213	240	100 kg	200 kg	A	
	Butylpropionate	3	UN1914	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Butyltoluenes	6.1	UN2667	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	A	
	Butyltrichlorosilane	8	UN1747	II	CORROSIVE	A7, B2, B6, N34, T8, T26.	None	202	242	Forbidden	30 L	C	12, 21, 40, 48
	1,4-Butynediol	6.1	UN2716	III	KEEP AWAY FROM FOOD.	A1	None	213	240	100 kg	200 kg	A	61, 70
	Butyraldehyde	3	UN1129	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Butyraldoxime	3	UN2840	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Butyric acid	8	UN2820	III	CORROSIVE	T1	154	203	241	5 L	60 L	A	12, 48
	Butyric anhydride	8	UN2739	III	CORROSIVE	T2	154	203	241	5 L	60 L	A	
	Butyronitrile	3	UN2411	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	1 L	60 L	E	40
	Butyryl chloride	3	UN2353	II	FLAMMABLE LIQUID, CORROSIVE.	T9, T26	None	202	243	1 L	5 L	C	40
	Cabazide	Forbidden											
	Cacodylic acid	6.1	UN1572	II	POISON		None	212	242	25 kg	100 kg	E	26
	Cadmium compounds	6.1	UN2570	I	POISON		None	211	242	5 kg	50 kg	A	
				II	POISON		None	212	242	25 kg	100 kg	A	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Caesium hydroxide, solid	8	UN2682	II	CORROSIVE		154	212	240	15 kg	50 kg	A	
	Caesium hydroxide solution	8	UN2681	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	
	Calcium	4.3	UN1401	II	DANGEROUS WHEN WET.		None	212	241	15 kg	50 kg	E	
	Calcium arsenate	6.1	UN1573	II	POISON		None	212	242	25 kg	100 kg	A	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Calcium arsenate and calcium arsenite, mixtures, solid	6.1	UN1574	II	POISON		None	212	242	25 kg	100 kg	A	
D	Calcium arsenite, solid	6.1	NA1574	II	POISON		None	212	242	25 kg	100 kg	A	
	Calcium bisulfite solution, see Bisulfites, inorganic, aqueous solutions, n.o.s.												
	Calcium carbide	4.3	UN1402	II	DANGEROUS WHEN WET.	A1, A8, B55, N34.	None	212	241	15 kg	50 kg	B	
	Calcium chlorate	5.1	UN1452	II	OXIDIZER	N34	152	212	242	5 kg	25 kg	A	56, 58, 106
	Calcium chlorate solution	5.1	UN2429	II	OXIDIZER	A2, N41, T8	152	202	242	1 L	5 L	B	56, 58, 106
	Calcium chlorite	5.1	UN1453	II	OXIDIZER	A9, N34	152	212	242	5 kg	25 kg	A	56, 58, 106
	Calcium cyanamide *with more than 0.1 per cent of calcium carbide.*	4.3	UN1403	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	A	
	Calcium cyanide	6.1	UN1575	I	POISON	N79, N80	None	211	242	5 kg	50 kg	A	26, 40
	Calcium dithionite *or* Calcium hydrosulfite	4.2	UN1923	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20	None	212	241	15 kg	50 kg	E	13
	Calcium hydride	4.3	UN1404	I	DANGEROUS WHEN WET.	A19, N40	None	211	242	Forbidden	15 kg	E	
	Calcium hydrosulfite, *see* Calcium dithionite												
	Calcium hypochlorite, dry *or* Calcium hypochlorite mixtures dry *with more than 39 per cent available chlorine (8.8 per cent available oxygen).*	5.1	UN1748	II	OXIDIZER	A7, A9, N34	152	212	None	5 kg	25 kg	D	48, 56, 58, 69, 106, 118
	Calcium hypochlorite, hydrated *or* Calcium hypochlorite, hydrated mixtures, *with not less than 5.5 per cent but not more than 10 per cent water.*	5.1	UN2880	II	OXIDIZER		152	212	240	5 kg	25 kg	A	50, 56, 58, 69, 106
	Calcium hypochlorite mixtures, dry, *with more than 10 per cent but not more than 39 per cent available chlorine.*	5.1	UN2208	III	OXIDIZER	A1, A29, N34	152	213	240	25 kg	100 kg	A	56, 58, 69, 106
	Calcium manganese silicon	4.3	UN2844	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	A	85, 103
	Calcium nitrate	5.1	UN1454	III	OXIDIZER	T2	152	213	240	25 kg	100 kg	A	
A	Calcium oxide	8	UN1910	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Calcium perchlorate	5.1	UN1455	II	OXIDIZER	T8	152	212	242	5 kg	25 kg	A	56, 58, 106
	Calcium permanganate	5.1	UN1456	II	OXIDIZER		152	212	242	5 kg	25 kg	D	56, 58, 69, 106, 107
	Calcium peroxide	5.1	UN1457	II	OXIDIZER		152	212	242	5 kg	25 kg	A	13, 75, 106
	Calcium phosphide	4.3	UN1360	I	DANGEROUS WHEN WET, POISON.	A8, A19, N40	None	211	242	Forbidden	15 kg	E	40, 85
	Calcium, pyrophoric *or* Calcium alloys, pyrophoric	4.2	UN1855	I	SPONTANEOUSLY COMBUSTIBLE.		None	187	None	Forbidden	Forbidden	D	
	Calcium resinate	4.1	UN1313	III	FLAMMABLE SOLID	A1, A19	None	213	240	25 kg	100 kg	A	
	Calcium resinate, fused	4.1	UN1314	III	FLAMMABLE SOLID	A1, A19	None	213	240	25 kg	100 kg	A	
	Calcium selenate, *see* Selenates *or* Selenites												
	Calcium silicide	4.3	UN1405	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	B	85, 103
				III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	B	85, 103
	Camphor oil	3	UN1130	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Camphor, *synthetic*	4.1	UN2717	III	FLAMMABLE SOLID	A1	None	213	240	25 kg	100 kg	A	

	Cannon primers, see Primers, tubular															
	Caproic acid	8	UN2829	III	CORROSIVE	T1	154	203	241	5 L	60 L	A				
	Caps, blasting, see Detonators, *etc.*															
	Carbamate pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2758	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	S	40			
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	40			
	Carbamate pesticides, liquid, toxic, flammable, n.o.s. *flash point not less than 23 degrees C.*	6.1	UN2991	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40			
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40			
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	242	60 L	220 L	A	40			
	Carbamate pesticides, liquid, toxic, n.o.s.	6.1	UN2992	I	POISON	T42	None	201	243	1 L	30 L	B	40			
				II	POISON	T14	None	202	243	5 L	60 L	B	40			
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40			
	Carbamate pesticides, solid, toxic, n.o.s.	6.1	UN2757	I	POISON		None	211	242	5 kg	50 kg	A	40			
				II	POISON		None	212	242	25 kg	100 kg	A	40			
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40			
	Carbolic acid, see Phenol, solid *or* Phenol, molten															
	Carbolic acid solutions, see Phenol solutions															
I	Carbon, activated	4.2	UN1362	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	0.5 kg	0.5 kg	A	12			
I	Carbon, *animal or vegetable origin*	4.2	UN1361	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	A	12			
	Carbon bisulfide, see Carbon disulfide															
	Carbon dioxide	2.2	UN1013		NONFLAMMABLE GAS.		306	302, 304	302, 314, 315	75 kg	150 kg	A				
	Carbon dioxide and ethylene oxide mixtures *with more than 6 per cent but not more than 25 percent ethylene oxide.*	2.1	UN1041		FLAMMABLE GAS		None	304	314, 315	Forbidden	25 kg	D	40			
	Carbon dioxide and ethylene oxide mixtures *with more than 25 percent ethylene oxide.*	2.3	UN1041		POISON GAS, FLAMMABLE GAS.	6, B9, B14	None	304	314, 315	Forbidden	25 kg	D	40			
	Carbon dioxide and ethylene oxide mixtures *with not more than 6 per cent ethylene oxide.*	2.2	UN1952		NONFLAMMABLE GAS.		None	304	314, 315	75 kg	150 kg	B				
	Carbon dioxide and nitrous oxide mixtures	2.2	UN1015		NONFLAMMABLE GAS.		306	None	244	75 kg	150 kg	A				
	Carbon dioxide and oxygen mixtures	2.2	UN1014		NONFLAMMABLE GAS.		306	None	244	75 kg	150 kg	A				
	Carbon dioxide, refrigerated liquid	2.2	UN2187		NONFLAMMABLE GAS.	B43	306	None	314, 315	50 kg	500 kg	B				
AW	Carbon dioxide, solid *or* Dry ice	9	UN1845	III	None	B12	217	217	240	200 kg	200 kg	C	40			
	Carbon disulfide	3	UN1131	I	FLAMMABLE LIQUID, POISON.	B16, T18, T26, T29.	None	201	243	Forbidden	Forbidden	D	18, 40, 115			
	Carbon monoxide	2.3	UN1016		POISON GAS, FLAMMABLE GAS.	4	None	302	None	Forbidden	25 kg	D	40			
	Carbon monoxide and hydrogen mixture	2.1	UN2600		FLAMMABLE GAS	5	None	302	302	Forbidden	Forbidden	D	40			
D	Carbon monoxide, refrigerated liquid (*cryogenic liquid*).	2.3	NA9202		POISON GAS, FLAMMABLE GAS.	4	None	316	316	Forbidden	Forbidden	D				
	Carbon tetrabromide	6.1	UN2516	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	25			
	Carbon tetrachloride	6.1	UN1846	II	POISON	N36, T8	None	202	243	5 L	60 L	A	40			
	Carbonyl chloride, see Phosgene															
	Carbonyl fluoride	2.3	UN2417		POISON GAS	2	None	302	None	Forbidden	Forbidden	D	40			
	Carbonyl sulfide	2.3	UN2204		POISON GAS, FLAMMABLE GAS.	2, B9, B14	None	304	314, 315	Forbidden	25 kg	D	40			
	Cartridge cases, empty primed, see Cases, cartridge, empty, with primer.															
	Cartridges, actuating, for aircraft ejector seat catapult, fire extinguisher, canopy removal or apparatus, see Cartridges, power device.															
	Cartridges, explosive, see Charges, demolition															

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols (1)	Hazardous materials descriptions and proper shipping names (2)	Hazard class or Division (3)	Identification Numbers (4)	Packing group (5)	Label(s) required (if not excepted) (6)	Special provisions (7)	(8) Packaging authorizations (§ 173.***) Exceptions (8A)	Non-bulk packaging (8B)	Bulk packaging (8C)	(9) Quantity limitations Passenger aircraft or railcar (9A)	Cargo aircraft only (9B)	(10) Vessel stowage requirements Vessel stowage (10A)	Other stowage provisions (10B)
	Cartridges, flash	1.1G	UN0049	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	
	Cartridges, flash	1.3G	UN0050	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	75 kg	B	
	Cartridges for weapons, blank	1.1C	UN0326	II	EXPLOSIVE 1.1C		None	62	None	Forbidden	Forbidden	B	
	Cartridges for weapons, blank	1.2C	UN0413	II	EXPLOSIVE 1.2C		None	62	None	Forbidden	Forbidden	B	
	Cartridges for weapons, blank *or* Cartridges, small arms, blank.	1.3C	UN0327	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	
	Cartridges for weapons, blank *or* Cartridges, small arms, blank.	1.4C	UN0338	II	EXPLOSIVE 1.4C		None	62	None	Forbidden	75 kg	A	24E
	Cartridges for weapons, blank *or* Cartridges, small arms, blank.	1.4S	UN0014	II	None	112	None	62	None	25 kg	100 kg	A	9E
	Cartridges for weapons, inert projectile *or* Cartridges, small arms.	1.2C	UN0328	II	EXPLOSIVE 1.2C		None	62	None	Forbidden	Forbidden	B	
	Cartridges for weapons, inert projectile *or* Cartridges, small arms.	1.4C	UN0339	II	EXPLOSIVE 1.4C		None	62	None	Forbidden	75 kg	B	
	Cartridges for weapons, inert projectile *or* Cartridges, small arms.	1.3C	UN0417	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	
	Cartridges for weapons, inert projectile *or* Cartridges, small arms, *other than blank*.	1.4S	UN0012	II	None	112	None	62	None	25 kg	100 kg	A	9E
	Cartridges for weapons, *with bursting charge*	1.1F	UN0005	II	EXPLOSIVE 1.1F		None	62	None	Forbidden	Forbidden	E	
	Cartridges for weapons, *with bursting charge*	1.2F	UN0007	II	EXPLOSIVE 1.2F		None	62	None	Forbidden	Forbidden	E	
	Cartridges for weapons, *with bursting charge*	1.4F	UN0348	II	EXPLOSIVE 1.4F		None	62	None	Forbidden	Forbidden	E	
	Cartridges for weapons, *with bursting charge*	1.4E	UN0412	II	EXPLOSIVE 1.4E		None	62	None	Forbidden	75 kg	A	24E
	Cartridges for weapons, *with bursting charge*	1.1E	UN0006	II	EXPLOSIVE 1.1E		None	62	None	Forbidden	Forbidden	B	
	Cartridges for weapons, *with bursting charge*	1.2E	UN0321	II	EXPLOSIVE 1.2E		None	62	None	Forbidden	Forbidden	B	
	Cartridges, oil well	1.3C	UN0277	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	
	Cartridges, oil well	1.4C	UN0278	II	EXPLOSIVE 1.4C		None	62	None	Forbidden	75 kg	A	24E
	Cartridges, power device	1.3C	UN0275	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	75 kg	B	
	Cartridges, power device	1.4C	UN0276	II	EXPLOSIVE 1.4C	110	None	62	None	Forbidden	75 kg	A	24E
	Cartridges, power device	1.2C	UN0381	II	EXPLOSIVE 1.2C		None	62	None	Forbidden	Forbidden	B	
	Cartridges, power device	1.4S	UN0323	II	EXPLOSIVE 1.4S	110, 112	None	62	None	25 kg	100 kg	A	9E
	Cartridges, safety, blank, *see* Cartridges for weapons, blank (*UN 0014*).												
	Cartridges, safety, *see* Cartridges for weapons, *other than blank or* Cartridges, power device (*UN 0323*).												
	Cartridges, signal	1.3G	UN0054	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	75 kg	B	
	Cartridges, signal	1.4G	UN0312	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E
	Cartridges, signal	1.4S	UN0405	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
D	Cartridges, small arms	ORM-D	None		None	112	230	None	None	30 kg gross.	30 kg gross.	A	
	Cartridges, sporting, see Cartridges for weapons, *other than blank*.												
	Cartridges, starter, jet engine, see Cartridges, power device.												
I	Cases, cartridge, empty with primer	1.4S	UN0055	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	Cases, cartridge, empty with primer	1.4C	UN0379	II	EXPLOSIVE 1.4C		None	62	None	Forbidden	75 kg	A	24E
	Cases, combustible, empty, without primer	1.3C	UN0447	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	
	Cases, combustible, empty, without primer	1.4C	UN0446	II	EXPLOSIVE 1.4C		None	62	None	Forbidden	75 kg	A	24E
	Casinghead gasoline see Natural gasoline												
AW	Castor beans *or* Castor meal *or* Castor pomace *or* Castor flake.	9	UN2969	II	None		155	204	240	No limit	No limit	E	34, 40, 44, 120
	Caustic alkali liquids, n.o.s.	8	UN1719	I	CORROSIVE	A7, B10, T42	None	201	242	0.5 L	2.5 L	A	
				II	CORROSIVE	B2, T14	154	202	242	1 L	30 L	A	
				III	CORROSIVE	T7	154	203	241	5 L	60 L	A	
	Caustic potash, see Potassium hydroxide *etc.*												

	Caustic soda, (etc.) see Sodium hydroxide *etc.*													
	Celluloid, *in block, rods, rolls, sheets, tubes, etc., except scrap.*	4.1	UN2000	III	FLAMMABLE SOLID		None	213	240	25 kg	100 kg	A		
	Celluloid, scrap	4.2	UN2002	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	D		
	Cement, see Adhesives *containing flammable liquid*													
	Cerium, *slabs, ingots, or rods*	4.1	UN1333	II	FLAMMABLE SOLID	N34	None	212	240	15 kg	50 kg	A		74, 91
	Cerium, *turnings or gritty powder*	4.3	UN3078	II	DANGEROUS WHEN WET.	A1	None	213	242	15 kg	50 kg	E		
	Cesium *or* Caesium	4.3	UN1407	I	DANGEROUS WHEN WET.	A19, N34, N40	None	211	242	Forbidden	15 kg	D		
	Cesium nitrate *or* Caesium nitrate	5.1	UN1451	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A		
D	Charcoal *briquettes, shell, screenings, wood, etc.*	4.2	NA1361	III	SPONTANEOUSLY COMBUSTIBLE.		151	213	240	25 kg	100 kg	A		12
	Charges, bursting, plastics bonded	1.1D	UN0457	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		
	Charges, bursting, plastics bonded	1.2D	UN0458	II	EXPLOSIVE 1.2D		None	62	None	Forbidden	Forbidden	B		
	Charges, bursting, plastics bonded	1.4D	UN0459	II	EXPLOSIVE 1.4D		None	62	None	Forbidden	75kg	A		24E
	Charges, bursting, plastics bonded	1.4S	UN0460	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A		9E
	Charges, demolition	1.1D	UN0048	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		
	Charges, depth	1.1D	UN0056	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		3E, 7E
	Charges, expelling, explosive, for fire extinguishers, see Cartridges, power device.													
	Charges, explosive, commercial *without detonator*	1.1D	UN0442	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		
	Charges, explosive, commercial *without detonator*	1.2D	UN0443	II	EXPLOSIVE 1.2D		None	62	None	Forbidden	Forbidden	B		
	Charges, explosive, commercial *without detonator*	1.4D	UN0444	II	EXPLOSIVE 1.4D		None	62	None	Forbidden	75 kg	A		24E
	Charges, explosive, commercial *without detonator*	1.4S	UN0445	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A		9E
	Charges, propelling, for cannon	1.2C	UN0414	II	EXPLOSIVE 1.2C		None	62	None	Forbidden	Forbidden	B		1E, 5E
	Charges, propelling, for cannon	1.3C	UN0242	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B		1E, 5E
	Charges, propelling, for cannon	1.1C	UN0279	II	EXPLOSIVE 1.1C		None	62	None	Forbidden	Forbidden	B		1E, 5E
	Charges, propelling, for rocket motors	1.1C	UN0271	II	EXPLOSIVE 1.1C		None	62	None	Forbidden	Forbidden	B		
	Charges, propelling, for rocket motors	1.3C	UN0272	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B		
	Charges, propelling, for rocket motors	1.2C	UN0415	II	EXPLOSIVE 1.2C		None	62	None	Forbidden	Forbidden	B		
	Charges, propelling, for rocket motors, *composite mixture.*	1.1C	UN0273	II	EXPLOSIVE 1.1C		None	62	None	Forbidden	Forbidden	B		
	Charges, propelling, for rocket motors, *composite mixture.*	1.3C	UN0274	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B		
	Charges, propelling, for rocket motors, *composite mixture.*	1.2C	UN0416	II	EXPLOSIVE 1.2C		None	62	None	Forbidden	Forbidden	B		
	Charges, shaped, commercial *without detonator*	1.2D	UN0439	II	EXPLOSIVE 1.2D		None	62	None	Forbidden	Forbidden	B		
	Charges, shaped, commercial *without detonator*	1.4D	UN0440	II	EXPLOSIVE 1.4D		None	62	None	Forbidden	75 kg	A		24E
	Charges, shaped, commercial *without detonator*	1.4S	UN0441	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A		9E
	Charges, shaped, commercial, *without detonator*	1.1D	UN0059	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		
	Charges, shaped, flexible, linear	1.4D	UN0237	II	EXPLOSIVE 1.4D		None	62	None	Forbidden	75 kg	A		24E
	Charges, shaped, flexible, linear	1.1D	UN0288	II	EXPLOSIVE 1.1D	101	None	62	None	Forbidden	Forbidden	B		
	Charges, supplementary explosive	1.1D	UN0060	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		1E, 5E
D	Chemical kit	8	NA1760	II	CORROSIVE		154	161	None	1 L	30 L	B		40
	Chemical kits (*must be classified and labelled according to the hazard class of the constituent(s) and must meet the requirements of special provision 15 in 172.102(c)(1)*).													
	Chloral, anhydrous, inhibited	6.1	UN2075	II	POISON	T14	None	212	243	25 kg	100 kg	D		40
	Chlorate and borate mixtures	5.1	UN1458	II	OXIDIZER	A9, N34	152	212	240	5 kg	25 kg	A		56, 58, 106
	Chlorate and magnesium chloride mixtures	5.1	UN1459	II	OXIDIZER	A9, N34, T8	152	212	240	5 kg	25 kg	A		56, 58, 106
	Chlorate of potash, see Potassium chlorate													
	Chlorate of soda, see Sodium chlorate													
	Chlorates, inorganic, n.o.s.	5.1	UN1461	II	OXIDIZER	A9, N34	152	212	242	5 kg	25 kg	A		56, 58, 106
	Chloric acid solution, *with not more than 10 per cent chloric acid.*	5.1	UN2626	I	OXIDIZER	T25	None	229	243	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.*.													

§ 172.101 Hazardous Materials Table—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Chlorine	2.3	UN1017		POISON GAS	2, B9, B14	None	304	314, 315	Forbidden	Forbidden	D	40, 51, 55, 82, 68
	Chlorine azide	Forbidden											
D	Chlorine dioxide, hydrate, frozen	5.1	NA9191	II	OXIDIZER, POISON		None	229	None	Forbidden	Forbidden	E	
	Chlorine dioxide (not hydrate)	Forbidden											
	Chlorine pentafluoride	2.3	UN2548		POISON GAS, OXIDIZER, CORROSIVE.	1, B7, B9, B14	None	304	314	Forbidden	Forbidden	D	40, 89, 90
	Chlorine trifluoride	2.3	UN1749		POISON GAS, OXIDIZER, CORROSIVE.	1, B7, B9, B14	None	304	314	Forbidden	Forbidden	D	40, 89, 90
	Chlorites, inorganic, n.o.s.	5.1	UN1462	II	OXIDIZER	A7, N34, T8	152	212	242	5 kg	25 kg	A	56, 58, 106
	1-Chloro-3-bromopropane	6.1	UN2688	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	A	
	3-Chloro-4-diethylaminobenzenediazonium zinc chloride.	4.1	UN3033	II	FLAMMABLE SOLID		None	224	None	15 kg	50 kg	C	
	1-Chloro-1,1-difluoroethane, see Chlorodifluoroethanes.												
	3-Chloro-4-methylphenylisocyanate	6.1	UN2236	II	POISON		None	202	243	5 L	60 L	B	40
	4-Chloro-o-toluidine hydrochloride	6.1	UN1579	III	KEEP AWAY FROM FOOD.		153	213	241	100 kg	200 kg	A	
+	Chloroacetaldehyde	6.1	UN2232	II	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	5 L	60 L	D	40
	Chloroacetic acid, liquid	8	UN1750	II	CORROSIVE, POISON.	A7, N34, T9, T27.	None	202	243	1 L	30 L	A	40
	Chloroacetic acid, solid	8	UN1751	III	CORROSIVE	A3, A7, N34	None	212	242	15 kg	50 kg	A	40
+	Chloroacetone, stabilized	6.1	UN1695	II	POISON	2, B9, B14, B32, B74, N12, N32, N34, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	40
	Chloroacetone (unstabilized)	Forbidden											
+	Chloroacetonitrile	6.1	UN2668	II	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	60 L	A	12, 26, 40, 48
	Chloroacetophenone (*CN*), *liquid*	6.1	UN1697	II	POISON	A3, N12, N32, N33.	None	202	242	Forbidden	60 L	D	12, 40
	Chloroacetophenone (*CN*), *solid*	6.1	UN1697	II	POISON	A3, N12, N32, N33, N34.	None	212	None	Forbidden	100 kg	D	12, 40
+	Chloroacetyl chloride	8	UN1752	II	CORROSIVE, POISON.	2, A3, A6, A7, B3, B8, B9, B14, B32, B74, B77, N34, N43, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	40
	Chloroanilines, liquid	6.1	UN2019	II	POISON	T14	None	202	243	5 L	60 L	A	
	Chloroanilines, solid	6.1	UN2018	II	POISON	T14, T38	None	212	242	25 kg	100 kg	A	
	Chloroanisidines	6.1	UN2233	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Chlorobenzene	3	UN1134	III	FLAMMABLE LIQUID	B1, T1	150	203	241	60 L	220 L	A	
	Chlorobenzol, see Chlorobenzene												
	Chlorobenzotrifluorides	3	UN2234	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	40
	Chlorobenzylchlorides	6.1	UN2235	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	A	

	Chlorobutanes	3	UN1127	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B		
	Chlorocresols, *liquid*	6.1	UN2669	II	POISON	T8	None	202	243	5 L	60 L	A	12	
	Chlorocresols, *solid*	6.1	UN2669	II	POISON		None	212	242	25 kg	100 kg	A	12	
	Chlorodifluorobromomethane, *R12B1*	2.2	UN1974		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A		
	Chlorodifluoroethanes, *R142b or* Difluorochloroethanes, *R142b.*	2.1	UN2517		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40	
	Chlorodifluoromethane and chloropentafluoroethane mixture *with fixed boiling point, with approximately 49 per cent chlorodifluoromethane. R502.*	2.2	UN1973		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A		
	Chlorodifluoromethane, *R22*	2.2	UN1018		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A		
	Chlorodinitrobenzenes	6.1	UN1577	II	POISON	T14	None	212	242	25 kg	100 kg	A	91	
	Chloroform	6.1	UN1888	II	POISON	N36, T14	None	202	243	5 L	60 L	A	40	
	Chloroformates, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN2742	II	POISON, CORROSIVE.	5	None	202	243	1 L	30 L	A	12, 13, 22, 25, 40, 48, 100	
	Chloromethyl ethyl ether	3	UN2354	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	E	40	
	Chloromethylchloroformate	6.1	UN2745	II	POISON, CORROSIVE.	T18	None	202	243	1 L	30 L	A	12, 13, 22, 25, 40, 48, 100	
	Chloronitroanilines	6.1	UN2237	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A		
+	Chloronitrobenzene, *ortho, liquid*	6.1	UN1578	II	POISON	T14	None	202	243	5 L	60 L	A		
+	Chloronitrobenzenes *meta or para, solid*	6.1	UN1578	II	POISON	T14	None	212	242	25 kg	100 kg	A		
	Chloronitrotoluenes *liquid*	6.1	UN2433	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	A		
	Chloronitrotoluenes, *solid*	6.1	UN2433	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A		
	Chloropentafluoroethane, *R115*	2.2	UN1020		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A		
	Chlorophenates, liquid	8	UN2904	III	CORROSIVE		154	203	241	5 L	60 L	A		
	Chlorophenates, solid	8	UN2905	III	CORROSIVE		154	213	240	25 kg	100 kg	A		
	Chlorophenols, liquid	6.1	UN2021	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A		
	Chlorophenols, solid	6.1	UN2020	III	KEEP AWAY FROM FOOD.	T7	153	213	240	100 kg	200 kg	A		
	Chlorophenyltrichlorosilane	8	UN1753	II	CORROSIVE	A7, B2, B6, N34, T8, T26.	None	202	242	Forbidden	30 L	C	40	
+	Chloropicrin	6.1	UN1580	I	POISON	2, B7, B9, B14, B32, B46, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	40	
	Chloropicrin and methyl bromide mixtures	2.3	UN1581		POISON GAS	2, B9, B14	None	193	314, 315	Forbidden	Forbidden	D	25, 40	
	Chloropicrin and methyl chloride mixtures	2.3	UN1582		POISON GAS	2	None	193	245	Forbidden	Forbidden	D	25, 40	
	Chloropicrin mixture, flammable (pressure not exceeding 14.7 psia at 115 degrees F flash point below 100 deg F) see Poisonous liquids, flammable, n.o.s.													
	Chloropicrin mixtures, n.o.s.	6.1	UN1583	I	POISON	5	None	201	243	Forbidden	Forbidden	C	40	
				II	POISON		None	202	243	Forbidden	Forbidden	C	40	
				III	KEEP AWAY FROM FOOD.		153	203	241	Forbidden	Forbidden	C	40	
D	Chloropivaloyl chloride	6.1	NA9263	I	POISON, CORROSIVE.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	B	40	
	Chloroplatinic acid, solid	8	UN2507	III	CORROSIVE		154	213	240	25 kg	100 kg	A		
	Chloroprene, inhibited	3	UN1991	I	FLAMMABLE LIQUID, POISON.	B57, T15	None	201	243	Forbidden	30 L	D	40	
	Chloroprene, uninhibited	Forbidden												
	2-Chloropropane	3	UN2356	I	FLAMMABLE LIQUID	N36, T14	150	201	243	1 L	30 L	E		
	3-Chloropropanol-1	6.1	UN2849	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	A		
	2-Chloropropene	3	UN2456	I	FLAMMABLE LIQUID	A3, N36, T20	150	201	243	1 L	30 L	E		
	alpha-Chloropropionic acid	8	UN2511	III	CORROSIVE	T8	154	203	241	5 L	60 L	A	8	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	2-Chloropyridine	6.1	UN2822	II	POISON	T14	None	202	243	5 L	60 L	A	40
	Chlorosilanes, n.o.s.	8	UN2987	II	CORROSIVE	B2	154	202	242	1 L	30 L	C	40
	Chlorosilanes, n.o.s., flash point not less than 23 degrees C.	8	UN2986	II	CORROSIVE, FLAMMABLE LIQUID.		None	202	243	1 L	30 L	C	23, 40
	Chlorosilanes, n.o.s, *flashpoint less than 23 degrees C.*	3	UN2985	II	FLAMMABLE LIQUID, CORROSIVE.	T18, T26	None	201	243	1 L	5 L	B	40
	Chlorosilanes, n.o.s., *which in contact with water emit flammable gases.*	4.3	UN2988	I	DANGEROUS WHEN WET, FLAMMABLE LIQUID, CORROSIVE.	A2	None	201	244	Forbidden	1 L	D	21, 28, 40, 49, 100
+	Chlorosulfonic acid (*with or without sulfur trioxide*)	8	UN1754	I	CORROSIVE, POISON.	2, A3, A6, A10, B10, B9, B14, B32, B74, T38, T43, T45.	None	227	244	0.5 L	2.5 L	C	8, 40
	Chlorotetrafluoroethane, *R124*	2.2	UN1021		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
	Chlorotoluenes	3	UN2238	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Chlorotoluidines *liquid*	6.1	UN2239	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	Chlorotoluidines *solid*	6.1	UN2239	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Chlorotrifluoroethane, *R133a*	2.2	UN1983		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
	Chlorotrifluoromethane and trifluoromethane azeotropic mixture with approximately 60 per cent chlorotrifluoromethane, R503.	2.2	UN2599		NONFLAMMABLE GAS,		306	304	314, 315	75 kg	150 kg	A	
	Chlorotrifluoromethane, *R13*	2.2	UN1022		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
D	Chromic acid, solid	5.1	NA1463	II	OXIDIZER, CORROSIVE.		None	212	242	5 kg	25 kg	A	
	Chromic acid solution	8	UN1755	II	CORROSIVE	B2, T9, T27	154	202	242	1 L	30 L	C	40
	Chromic anhydride, see Chromium trioxide, anhydrous.												
	Chromic fluoride, solid	8	UN1756	II	CORROSIVE		154	212	240	15 kg	50 kg	A	26
	Chromic fluoride, solution	8	UN1757	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	
	Chromium nitrate	5.1	UN2720	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	
	Chromium oxychloride	8	UN1758	I	CORROSIVE	A3, A6, A7, B10, N34, T12, T26,	None	201	242	0.5 L	2.5 L	C	8, 40, 66, 74, 89, 90
	Chromium trioxide, anhydrous	5.1	UN1463	II	OXIDIZER, CORROSIVE.		None	212	242	5 kg	25 kg	A	
	Chromosulfuric acid	8	UN2240	I	CORROSIVE	A3, A6, A7, B4, B6, N34, T12, T27.	None	201	242	0.5 L	2.5 L	B	8, 9, 40, 66, 74, 89, 90
	Chromyl chloride, see Chromium oxychloride												
	Cigar and cigarette lighters, charged with fuel, see Lighters for cigars, cigarettes, etc.												
	Coal briquettes, hot	Forbidden											
	Coal gas	2.3	UN1023		POISON GAS, FLAMMABLE GAS.	3	None	302	314, 315	Forbidden	25 kg	D	40
	Coal tar distillates, flammable	3	UN1136	II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	

	Coal tar dye, corrosive, liquid, n.o.s, see Dyes, liquid *or* solid, n.o.s. *or* Dye intermediates, liquid *or* solid, n.o.s., *corrosive.*													
	Coating solution	3	UN1139	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B		
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A		
	Cobalt naphthenates, powder	4.1	UN2001	III	FLAMMABLE SOLID	A19	151	213	240	25 kg	100 kg	A		
	Cobalt resinate, precipitated	4.1	UN1318	III	FLAMMABLE SOLID	A1, A19	151	213	240	25 kg	100 kg	A		
	Cocculus	6.1	UN1584	II	POISON		None	212	242	25 kg	100 kg	A		
	Coke, hot	Forbidden												
	Collodion, see Nitrocellulose *etc.*													
D	Compounds, cleaning liquid	8	NA1760	I	CORROSIVE	A7, B10, T42	None	201	242	0.5 L	2.5 L	B	40	
				II	CORROSIVE	B2, N37, T14	154	202	242	1 L	30 L	B	40	
				III	CORROSIVE	N37, T7	154	203	241	5 L	60 L	A	40	
D	Compounds, cleaning liquid	3	NA1993	I	FLAMMABLE LIQUID	T42	150	201	243	1 L	30 L	E		
				II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B		
				III	FLAMMABLE LIQUID	B1, B52, T7, T30.	150	203	242	60 L	220 L	A		
D	Compounds, tree *or* weed killing, liquid	8	NA1760	I	CORROSIVE	A7, B10, T42	None	201	242	0.5 L	2.5 L	B	40	
				II	CORROSIVE	B2, N37, T14	154	202	242	1 L	30 L	B	40	
				III	CORROSIVE	N37, T7	154	203	241	5 L	60 L	A	40	
D	Compounds, tree *or* weed killing, liquid	3	NA1993	I	FLAMMABLE LIQUID	T42	150	201	243	1 L	30 L	E		
				II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B		
				III	FLAMMABLE LIQUID	B1, B52, T7, T30.	150	203	242	60 L	220 L	A		
D	Compounds, tree *or* weed killing, liquid	6.1	NA2810	I	POISON		153	201	243	1 L	30 L	B	40	
				II	POISON		153	202	243	5 L	60 L	B	40	
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	A	40	
D	Combustible liquid, n.o.s.	Combustible liquid	NA1993	III	None	T1	150	203	241	60 L	220 L	A		
	Components, explosive train, n.o.s.	1.2B	UN0382	II	EXPLOSIVE 1.2B	101	None	62	None	Forbidden	Forbidden	B	1E, 6E	
	Components, explosive train, n.o.s.	1.4B	UN0383	II	EXPLOSIVE 1.4B	101	None	62	None	Forbidden	75 kg	A	24E	
	Components, explosive train, n.o.s.	1.4S	UN0384	II	EXPLOSIVE 1.4S	101	None	62	None	25 kg	100 kg	A	9E	
	Components, explosive train, n.o.s.	1.1B	UN0461	II	EXPLOSIVE 1.1B	101	None	62	None	Forbidden	Forbidden	B	1E, 6E	
	Composition B, see Hexolite, *etc.*													
	Compressed *or* Liquefied gases, flammable, n.o.s.	2.1	UN1954		FLAMMABLE GAS		306	302, 304, 305	314, 315	Forbidden	150 kg		40, 105	
	Compressed *or* Liquefied gases, flammable, toxic, n.o.s. *Inhalation hazard Zone A.*	2.3	UN1953		POISON GAS, FLAMMABLE GAS.	1	None	192	245	Forbidden	Forbidden	D	40, 95	
	Compressed *or* Liquefied gases, flammable, toxic, n.o.s. *Inhalation Hazard Zone B.*	2.3	UN1953		POISON GAS, FLAMMABLE GAS.	2, B9, B14	None	302, 304, 305	314, 315	Forbidden	Forbidden	D	40	
	Compressed *or* Liquefied gases, flammable, toxic, n.o.s. *Inhalation Hazard Zone C.*	2.3	UN1953		POISON GAS, FLAMMABLE GAS.	3, B14	None	302, 304, 305	314, 315	Forbidden	Forbidden	D	40	
	Compressed *or* Liquefied gases, flammable, toxic, n.o.s. *Inhalation Hazard Zone D.*	2.3	UN1953		POISON GAS, FLAMMABLE GAS.	4	None	302, 304, 305	314, 315	Forbidden	Forbidden	D	40	
	Compressed *or* Liquefied gases, n.o.s.	2.2	UN1956		NONFLAMMABLE GAS.		306, 307	302, 304, 305	314, 315	75 kg	150 kg	A		
	Compressed *or* Liquefied gases, toxic, n.o.s. *Inhalation Hazard Zone A.*	2.3	UN1955		POISON GAS	1	None	192	245	Forbidden	Forbidden	D	40	
	Compressed *or* Liquefied gases, toxic, n.o.s. *Inhalation Hazard Zone B.*	2.3	UN1955		POISON GAS	2, B9, B14	None	302, 304, 305	314, 315	Forbidden	Forbidden	D	40	
	Compressed *or* Liquefied gases, toxic, n.o.s. *Inhalation Hazard Zone C.*	2.3	UN1955		POISON GAS	3, B14	None	302, 304, 305	314, 315	Forbidden	Forbidden	D	40	
	Compressed *or* Liquefied gases, toxic, n.o.s. *Inhalation Hazard Zone D.*	2.3	UN1955		POISON GAS	4	None	302, 304, 305	314, 315	Forbidden	Forbidden	D	40	
D	Consumer commodity	ORM-D	None		None		156, 306	156, 306	None	30 kg gross.	30 kg gross.	A		

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Contrivances, water-activated, *with burster, expelling charge or propelling charge.*	1.2L	UN0248	II	EXPLOSIVE 1.2L	101	None	62	None	Forbidden	Forbidden	E	2E, 8E, 11E, 17E
	Contrivances, water-activated, *with burster, expelling charge or propelling charge.*	1.3L	UN0249	II	EXPLOSIVE 1.3L	101	None	62	None	Forbidden	Forbidden	E	2E, 8E, 11E, 17E
	Copper acetoarsenite	6.1	UN1585	II	POISON		None	212	242	25 kg	100 kg	A	
	Copper acetylide	Forbidden											
	Copper amine azide	Forbidden											
	Copper arsenite	6.1	UN1586	II	POISON		None	212	242	25 kg	100 kg	A	
	Copper based pesticides, liquid, flammable, toxic n.o.s., *flash point less than 23 degrees C.*	3	UN2776	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	40
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	40
	Copper based pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3009	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	60 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	241	60 L	220 L	A	40
	Copper based pesticides, liquid, toxic, n.o.s.	6.1	UN3010	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Copper based pesticides, solid, toxic, n.o.s.	6.1	UN2775	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Copper chlorate	5.1	UN2721	II	OXIDIZER	A1	152	212	242	5 kg	25 kg	A	56, 58, 106
	Copper chloride	8	UN2802	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Copper cyanide	6.1	UN1587	II	POISON		None	204	242	25 kg	100 kg	A	26
	Copper selenate, *see* Selenates *or* Selenites												
	Copper selenite, *see* Selenates *or* Selenites												
	Copper tetramine nitrate	Forbidden											
AW	Copra	4.2	UN1363	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	A	13, 19, 48, 119
	Cord, detonating, *flexible*	1.1D	UN0065	II	EXPLOSIVE 1.1D	102	63(a)	62	None	Forbidden	Forbidden	B	
	Cord, detonating, *flexible*	1.4D	UN0289	II	EXPLOSIVE 1.4D		None	62	None	Forbidden	75 kg	A	24E
	Cord detonating *or* Fuse detonating *metal clad*	1.2D	UN0102	II	EXPLOSIVE 1.2D		None	62	None	Forbidden	Forbidden	B	
	Cord, detonating *or* Fuse, detonating *metal clad*	1.1D	UN0290	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	
	Cord, detonating, mild effect *or* Fuse, detonating, mild effect *metal clad*	1.4D	UN0104	II	EXPLOSIVE 1.4D		None	62	None	Forbidden	75 kg	A	24E
	Cord, igniter	1.4G	UN0066	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E
	Cordeau detonant fuse, see Cord, detonating, *etc.*; Cord, detonating, *flexible.*												
	Cordite, see Powder, smokeless												
	Corrosive liquids, flammable, n.o.s.	8	UN2920	I	CORROSIVE, FLAMMABLE LIQUID.	B10, T42	None	201	243	0.5 L	2.5 L	C	12, 21, 25, 40, 46
				II	CORROSIVE, FLAMMABLE LIQUID.	B2, T15, T26	None	202	243	1 L	30 L	C	12, 21, 25, 40, 46
	Corrosive liquids, n.o.s.	8	UN1760	I	CORROSIVE	A7, B10, T42	None	201	243	0.5 L	2.5 L	B	40
				II	CORROSIVE	B2, T14	154	202	242	1 L	30 L	B	40
				III	CORROSIVE	T7	154	203	241	5 L	60 L	A	40

	Corrosive liquids, oxidizing, n.o.s.	8	UN3093	I	CORROSIVE, OXIDIZER.		None	201	243	Forbidden	2.5 L	C	89	
				II	CORROSIVE, OXIDIZER.		None	202	243	1 L	30 L	C	89	
	Corrosive liquids, poisonous, n.o.s.	8	UN2922	I	CORROSIVE, POISON.	A7, B10	None	201	243	0.5 L	2.5 L	B	40, 95	
				II	CORROSIVE, POISON.	B3	None	202	243	1 L	30 L	B	40, 95	
	Corrosive liquids, which in contact with water emit flammable gases, n.o.s.	8	UN3094	I	CORROSIVE, DANGEROUS WHEN WET.		None	201	243	Forbidden	1 L	E		
				II	CORROSIVE, DANGEROUS WHEN WET.		None	202	243	1 L	5 L	E		
	Corrosive solids, flammable, n.o.s.	8	UN2921	I	CORROSIVE, FLAMMABLE SOLID.		None	211	242	1 kg	25 kg	B	12, 24, 25, 48	
				II	CORROSIVE, FLAMMABLE SOLID.		None	212	242	15 kg	50 kg	B	12, 24, 25, 48	
	Corrosive solids, n.o.s.	8	UN1759	I	CORROSIVE		None	211	242	1 kg	25 kg	B		
				II	CORROSIVE		154	212	240	15 kg	50 kg	A		
				III	CORROSIVE		154	213	240	25 kg	100 kg	A		
	Corrosive solids, oxidizing, n.o.s.	8	UN3084	I	CORROSIVE, OXIDIZER.		None	211	240	1 kg	25 kg	C	89	
				II	CORROSIVE, OXIDIZER.		None	212	240	15 kg	50 kg	C	89	
	Corrosive solids, poisonous, n.o.s.	8	UN2923	I	CORROSIVE, POISON.		None	211	242	1 kg	25 kg	B	40, 95	
				II	CORROSIVE, POISON.		None	212	240	15 kg	50 kg	B	40, 95	
	Corrosive solids, self heating, n.o.s.	8	UN3095	I	CORROSIVE, SPONTANEOUSLY COMBUSTIBLE.		None	211	241	1 kg	25 kg	C		
				II	CORROSIVE, SPONTANEOUSLY COMBUSTIBLE.		None	212	242	15 kg	50 kg	C		
	Corrosive solids, which in contact with water emit flammable gases, n.o.s.	8	UN3096	I	CORROSIVE, DANGEROUS WHEN WET.		None	211	241	1 kg	25 kg	E		
				II	CORROSIVE, DANGEROUS WHEN WET.		None	212	242	15 kg	50 kg	E		
DW	Cotton	9	NA1365			W41	None	None	None	No limit	No limit	A		
I	Cotton waste, oily	4.2	UN1364	III	SPONTANEOUSLY COMBUSTIBLE.	N9	None	213	None	Forbidden	Forbidden	A	54	
AIW	Cotton, wet	4.2	UN1365				None	204	241	Forbidden	Forbidden	A		
	Coumarin derivative pesticides, liquid, flammable, toxic, n.o.s. *flashpoint less than 23 deg C.*	3	UN3024	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	40	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	40	
	Coumarin derivative pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3025	I	POISON, FLAMMABLE LIQUID.		None	201	243	1 L	30 L	B	40	
				II	POISON, FLAMMABLE LIQUID.		None	202	243	5 L	60 L	B	40	
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1	153	203	241	60 L	220 L	A	40	
	Coumarin derivative pesticides, liquid, toxic, n.o.s.	6.1	UN3026	I	POISON		None	201	243	1 L	30 L	B	40	
				II	POISON		None	202	243	5 L	60 L	B	40	
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	A	40	
	Coumarin derivative pesticides, solid, toxic, n.o.s.	6.1	UN3027	I	POISON		None	211	242	5 kg	50 kg	A	40	
				II	POISON		None	212	242	25 kg	100 kg	A	40	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40	
	Cresols (*o-; m-; p-*)	6.1	UN2076	II	POISON	T8	None	202	243	5 L	60 L	A		
	Cresylic acid	6.1	UN2022	II	POISON	T8	None	202	243	5 L	60 L	A		

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
+	Crotonaldehyde, stabilized	3	UN1143	II	FLAMMABLE LIQUID, POISON	2, B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	Forbidden	60 L	B	40
	Crotonic acid *liquid*	8	UN2823	III	CORROSIVE		154	203	240	5 L	60 L	A	12, 48
	Crotonic acid, *solid*	8	UN2823	III	CORROSIVE		154	213	240	25 kg	100 kg	A	12, 48
	Crotonylene	3	UN1144	I	FLAMMABLE LIQUID	T20	150	201	243	1 L	30 L	E	
	Cupriethylenediamine solution	8	UN1761	II	CORROSIVE, POISON	T8, T26	154	202	243	1 L	30 L	A	95
	Cutters, cable, explosive	1.4S	UN0070	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	Cyanide or cyanide mixtures, dry, see Cyanides, inorganic, n.o.s.												
	Cyanide solutions	6.1	UN1935	I	POISON	B37, T18, T26	None	201	243	1 L	30 L	B	40, 52
				II	POISON	T18, T26	None	202	243	5 L	60 L	A	40, 52
				III	KEEP AWAY FROM FOOD	T18, T26	153	203	241	60 L	220 L	A	40, 52
	Cyanides, inorganic, n.o.s.	6.1	UN1588	I	POISON	N74, N75	None	211	242	5 kg	50 kg	A	52
				II	POISON	N74, N75	None	212	242	25 kg	100 kg	A	52
				III	KEEP AWAY FROM FOOD	N74, N75	153	203	241	100 kg	200 kg	A	52
	Cyanogen bromide	6.1	UN1889	I	POISON, CORROSIVE	1, A6, A8, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	25 kg	D	40
	Cyanogen chloride, inhibited	2.3	UN1589		POISON GAS, FLAMMABLE GAS.	1	None	192	245	Forbidden	Forbidden	D	40
	Cyanogen, liquefied	2.3	UN1026		POISON GAS, FLAMMABLE GAS.	2	None	192	245	Forbidden	Forbidden	D	40
	Cyanuric chloride	8	UN2670	III	CORROSIVE		None	213	240	25 kg	100 kg	A	12, 40, 48
	Cyanuric triazide	Forbidden											
	Cyclobutane	2.1	UN2601		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40
	Cyclobutylchloroformate	6.1	UN2744	II	POISON, CORROSIVE	T18	None	202	243	1 L	30 L	A	12, 13, 22, 25, 40, 48, 100
	1,5,9-Cyclododecatriene	6.1	UN2518	III	KEEP AWAY FROM FOOD	T7	153	203	241	60 L	220 L	A	40
	Cycloheptane	3	UN2241	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	40
	Cycloheptatriene	3	UN2603	II	FLAMMABLE LIQUID, POISON	T14	None	202	243	1 L	60 L	E	40
	Cycloheptene	3	UN2242	II	FLAMMABLE LIQUID	T7	150	202	241	5 L	60 L	B	
	Cyclohexane	3	UN1145	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	
	Cyclohexanone	3	UN1915	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Cyclohexene	3	UN2256	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	E	
	Cyclohexenyltrichlorosilane	8	UN1762	II	CORROSIVE	A7, B2, N34, T8, T26.	None	202	242	Forbidden	30 L	C	40
	Cyclohexyl acetate	3	UN2243	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
+	Cyclohexyl isocyanate	6.1	UN2488	II	POISON	2, B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	5 L	60 L	D	40
	Cyclohexyl mercaptan	3	UN3054	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	40, 95, 102
	Cyclohexylamine	8	UN2357	II	CORROSIVE, FLAMMABLE LIQUID.	T8, T26	None	202	243	1 L	30 L	A	12, 21, 40, 48
	Cyclohexyltrichlorosilane	8	UN1763	II	CORROSIVE	A7, B2, N34, T8, T26.	None	202	242	Forbidden	30 L	C	40

	Cyclonite and cyclotetramethylenetetranitramine mixtures, wetted *or* desensitized *see* RDX and HMX mixtures, wetted *or* desensitized *etc.*ed.														
	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	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A			
	Cyclooctatetraene	3	UN2358	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B			
	Cyclopentane	3	UN1146	II	FLAMMABLE LIQUID	T14	150	202	242	5 L	60 L	E			
	Cyclopentane, methyl, see Methyl cyclopentane														
	Cyclopentanol	3	UN2244	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A			
	Cyclopentanone	3	UN2245	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A			
	Cyclopentene	3	UN2246	II	FLAMMABLE LIQUID	T13	150	202	242	5 L	60 L	E			
	Cyclopropane, liquified	2.1	UN1027		FLAMMABLE GAS		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	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E		
	Cyclotetramethylenetetranitramine, wetted *or* HMX, wetted *or* Octogen, wetted*with not less than 15 per cent water, by mass.*	1.1D	UN0226	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E		
	Cyclotrimethylenenitramine and octogen, mixtures, wetted *or* desensitized *see* RDX and HMX mixtures, wetted *or* desensitized *etc.*.														
	Cyclotrimethylenetrinitramele and cyclotetramethylenetetranitramine 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, desensitizede; Hexogen; RDX), desensitized.	1.1D	UN0483	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E		
	Cyclotrimethylenetrinitramine, wetted *or* Cyclonite, wetted *or* Hexogen, wetted *or* RDX, wetted *with not less than 15 percent water by mass.*	1.1D	UN0072	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E		
	Cymenes	3	UN2046	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A			
	Decaborane	4.1	UN1868	II	FLAMMABLE SOLID, POISON.	A19, A20	None	212	None	Forbidden	50 kg	A			
	Decahydronaphthalene	3	UN1147	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A			
	n-Decane	3	UN2247	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A			
	Deflagrating metal salts of aromatic nitroderivatives, n.o.s.	1.3C	UN0132	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E		
	Delay electric igniter, see Igniters														
D	Denatured alcohol	3	NA1987	II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B			
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A			
D	Denatured alcohol	3	NA1986	I	FLAMMABLE LIQUID, POISON.	T8, T31	None	201	243	Forbidden	30 L	E	40		
				II	FLAMMABLE LIQUID, POISON.	T8, T31	150	202	243	1 L	60 L	E	40		
	Depth charges, see Charges, depth														
	Detonating relays, see Detonators, *etc.*														
	Detonator assemblies, non-electric *for blasting*	1.1B	UN0360	II	EXPLOSIVE 1.1B		None	62	None	Forbidden	Forbidden	B	1E, 2E, 6E		
	Detonator assemblies, non-electric, *for blasting*	1.4B	UN0361	II	EXPLOSIVE 1.4B	103	63(f), 63(g)	62	None	Forbidden	75 kg	A	1E, 2E, 6E, 24E		
	Detonators, electric, *for blasting*	1.1B	UN0030	II	EXPLOSIVE 1.1B		63(f), 63(g)	62	None	Forbidden	Forbidden	B			

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Detonators, electric, *for blasting*	1.4B	UN0255	II	EXPLOSIVE 1.4B	103	63(f), 63(g)	62	None	Forbidden	75 kg	A	24E
	Detonators, electric *for blasting*	1.4S	UN0456	II	EXPLOSIVE 1.4S	104	63(f), 63(g)	62	None	25 kg	100 kg	A	9E
	Detonators for ammunition	1.1B	UN0073	II	EXPLOSIVE 1.1B		None	62	None	Forbidden	Forbidden	B	2E, 6E, 25E
	Detonators for ammunition	1.2B	UN0364	II	EXPLOSIVE 1.2B		None	62	None	Forbidden	Forbidden	B	2E, 6E
	Detonators for ammunition	1.4B	UN0365	II	EXPLOSIVE 1.4B	103	None	62	None	Forbidden	75 kg	A	24E
	Detonators for ammunition	1.4S	UN0366	II	EXPLOSIVE 1.4S	104	None	62	None	25 kg	100 kg	A	9E
	Detonators, non-electric, *for blasting*	1.1B	UN0029	II	EXPLOSIVE 1.1B		None	62	None	Forbidden	Forbidden	B	1E, 2E, 6E
	Detonators, non-electric *for blasting*	1.4B	UN0267	II	EXPLOSIVE 1.4B	103	63(f), 63(g)	62	None	Forbidden	75 kg	B	
	Detonators, non-electric *for blasting*	1.4S	UN0455	II	EXPLOSIVE 1.4S	104	None	62	None	25 kg	100 kg	A	9E
	Deuterium	2.1	UN1957		FLAMMABLE GAS		306	302	None	Forbidden	150 kg	E	40
	Devices, small, hydrocarbon gas powered *or* hydrocarbon gas refills for small devices *with release device.*	2.1	UN3150		FLAMMABLE GAS		306	304		Forbidden	150 kg	B	40
	Di-n-amylamine	6.1	UN2841	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	A	
	Di-n-butyl peroxydicarbonate, more than 52 per cent in solution.	Forbidden											
	Di-n-butylamine	8	UN2248	II	CORROSIVE, FLAMMABLE LIQUID.	T8	None	202	243	1 L	30 L	A	12, 21, 48
	2,2-Di-(tert-butylperoxy) butane, more than 55 per cent in solution.	Forbidden											
	Di-(tert-butylperoxy) phthalate, more than 55 per cent in solution.	Forbidden											
	2,2-Di-(4,4-di-tert-butylperoxycyclohexyl) propane, more than 42 per cent with inert solid.	Forbidden											
	Di-2,4-dichlorobenzoyl peroxide, more than 75 per cent with water.	Forbidden											
	1,2-Di-(dimethylamino) ethane	3	UN2372	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	B	
	Di-2-ethylhexyl phosphoric acid, see Diisooctyl acid phosphate.												
	Di-(1-hydroxytetrazole) (dry)	Forbidden											
	Di-(1-naphthoyl) peroxide	Forbidden											
	2,2'-Di-(nitroxy) methylether	Forbidden											
	Di-(beta-nitroxyethyl) ammonium nitrate	Forbidden											
	Diacetone alcohol	3	UN1148	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	A	
	Diacetone alcohol peroxides, more than 57% in solution with more than 9% hydrogen peroxide, less than 26% diacetone alcohol and less than 9% water, total active oxygen content more than 9% by mass.	Forbidden											
	Diacetyl, see Butanedione												
	Diacetyl peroxide, solid, or more than 25% in solution.	Forbidden											
	Diallylamine	3	UN2359	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	B	40
	Diallylether	3	UN2360	II	FLAMMABLE LIQUID, POISON.	N12, T8	None	202	243	1 L	60 L	E	40
	4,4'-Diaminodiphenyl methane	6.1	UN2651	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	p-Diazidobenzene	Forbidden											
	1,2-Diazidoethane	Forbidden											

	2-Diazo-1-naphthol-4-sulpho-chloride	4.1	UN3042	II	FLAMMABLE SOLID, EXPLOSIVE.	53	None	224	None	Forbidden	Forbidden	D		
	2-Diazo-1-naphthol-5-sulpho-chloride	4.1	UN3043	II	FLAMMABLE SOLID, EXPLOSIVE.	53	None	224	None	Forbidden	Forbidden	D		
	1,1'-Diazoaminonaphthalene	Forbidden												
	Diazoaminotetrazole (dry)	Forbidden												
	Diazodinitrophenol (dry)	Forbidden												
	Diazodinitrophenol, wetted *with not less than 40 per cent water or mixture of alcohol and water, by mass.*	1.1A	UN0074	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E	
	Diazodiphenylmethane	Forbidden												
	Diazonium nitrates (dry)	Forbidden												
	Diazonium perchlorates (dry)	Forbidden												
	1,3-Diazopropane	Forbidden												
	Dibenzyl peroxydicarbonate, more than 87 per cent with water.	Forbidden												
	Dibenzyldichlorosilane	8	UN2434	II	CORROSIVE	B2, T8, T26	154	202	242	1 L	30 L	C	40	
	Diborane	2.3	UN1911		POISON GAS, FLAMMABLE GAS.	1	None	302	None	Forbidden	Forbidden	D	40, 57	
	Diborane mixtures	2.1	NA1911		FLAMMABLE GAS	5	None	302	245	Forbidden	Forbidden	D	40, 57	
	Dibromoacetylene	Forbidden												
	Dibromobenzene	3	UN2711	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	1,2-Dibromobutan-3-one	6.1	UN2648	II	POISON		None	202	243	5 L	60 L	B	40	
	Dibromochloropropane	6.1	UN2872	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A		
A	Dibromodifluoromethane, *R12B2*	9	UN1941	III	None	T22	155	203	241	100 L	220 L	A	25	
	1,2-Dibromoethane, see Ethylene dibromide													
	Dibromomethane	6.1	UN2664	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A		
	Dibutyl ethers	3	UN1149	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	Dibutylaminoethanol	6.1	UN2873	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	A		
	N,N'-Dichlorazodicarbonamidine (salts of) (dry)	Forbidden												
	1,1-Dichloro-1-nitroethane	6.1	UN2650	II	POISON	T8	None	202	243	5 L	60 L	A	12, 40, 48	
D	3,5-Dichloro-2,4,6-trifluoropyridine	6.1	NA9264	I	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	A	40, 95	
	Dichloroacetic acid	8	UN1764	II	CORROSIVE	A3, A6, A7, B2, N34, T9, T27.	154	202	242	1 L	30 L	A		
	1,3-Dichloroacetone	6.1	UN2649	II	POISON		None	212	243	25 kg	100 kg	B	12, 40, 48	
	Dichloroacetyl chloride	8	UN1765	II	CORROSIVE	A3, A6, A7, B2, B6, N34, T8, T26.	154	202	242	1 L	30 L	D	40	
	Dichloroacetylene	Forbidden												
	Dichloroanilines, solid *or* liquid	6.1	UN1590	II	POISON	T14	None	202	242	5 L	60 L	A	40	
	o-Dichlorobenzene	6.1	UN1591	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A		
	p-Dichlorobenzene	6.1	UN1592	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A		
D	Dichlorobutene	8	NA2920	I	CORROSIVE. FLAMMABLE LIQUID.		None	201	243	0.5 L	2.5 L	C	12, 21, 25, 40, 48	
	2,2-Dichlorodiethyl ether	6.1	UN1916	II	POISON. FLAMMABLE LIQUID.	N33, N34, T8	None	202	243	5 L	60 L	A		
	Dichlorodifluoromethane and difluoroethane azeotropic mixture *with approximately 74 per cent dichlorodifluoromethane, R500.*	2.2	UN2602		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A		
	Dichlorodifluoromethane and ethylene oxide mixture, *with not more than 12% ethylene oxide.*	2.2	UN3070		NONFLAMMABLE GAS.		None	304	314, 315	Forbidden	25 kg	D	40	
	Dichlorodifluoromethane, *R12*	2.2	UN1028		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A		
	Dichlorodimethyl ether, symmetrical	6.1	UN2249	I	POISON	T25	None	201	243	Forbidden	Forbidden	D	40, 105	
	1,1-Dichloroethane	3	UN2362	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	40	
	1,2-Dichloroethane, see Ethylene dichloride													
	Dichloroethyl sulfide	Forbidden												
	Dichloroethylene	3	UN1150	II	FLAMMABLE LIQUID	T14	150	202	242	5 L	60 L	B		

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Dichlorofluoromethane, *R21*	2.2	UN1029		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
	Dichloroisocyanuric acid, dry *or* Dichloroisocyanuric acid salts.	5.1	UN2465	II	OXIDIZER	28	152	212	240	5 kg	25 kg	A	13
	Dichloroisopropyl ether	6.1	UN2490	II	POISON	T8	None	202	243	5 L	60 L	B	
	Dichloromethane	6.1	UN1593	III	KEEP AWAY FROM FOOD.	N36, T13	153	203	241	60 L	220 L	A	
	Dichloropentanes	3	UN1152	III	FLAMMABLE LIQUID	B1, T1	150	202	241	60 L	220 L	A	
	Dichlorophenyl isocyanates	6.1	UN2250	II	POISON		None	212	242	25 kg	100 kg	A	25, 40, 48
	Dichlorophenyltrichlorosilane	8	UN1766	II	CORROSIVE	A7, B2, B6, N34, T8, T26.	None	202	242	Forbidden	30 L	C	40
	Dichloropropane, see Propylene dichloride												
	1,3-Dichloropropanol-2	6.1	UN2750	II	POISON	T8	None	202	243	5 L	60 L	A	12, 40, 48
	Dichloropropene	3	UN2047	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	A	
	Dichloropropene and propylene dichloride mixture, see Propylene dichloride.												
	Dichlorosilane	2.3	UN2189		POISON GAS, FLAMMABLE GAS.	2, B9, B14	None	304	314, 315	Forbidden	Forbidden	D	40
	Dichlorotetrafluoroethane, *R114*	2.2	UN1958		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
	Dichlorovinylchloroarsine	Forbidden											
	Dicycloheptadiene, *see* Norbornadiene												
	Dicyclohexylamine	8	UN2565	III	CORROSIVE	T8	154	203	241	5 L	60 L	A	
	Dicyclohexylammonium nitrite	4.1	UN2687	III	FLAMMABLE SOLID		153	213	240	25 kg	100 kg	A	48
	Dicyclopentadiene	3	UN2048	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Didymium nitrate	5.1	UN1465	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	A	
D	Dieldrin	6.1	NA2761	II	POISON		None	212	242	0.5 kg	5 kg	A	40
D	Diesel fuel	3	NA1993	III	None	B1	*150*	*203*	*241*	60 L	220 L	A	
	Diethanol nitrosamine dinitrate (dry)	Forbidden											
	2,5-Diethoxy-4-morpholinobenzenediazonium zinc chloride.	4.1	UN3036	II	FLAMMABLE SOLID		None	224	None	15 kg	50 kg	C	2
	Diethoxymethane	3	UN2373	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	3,3-Diethoxypropene	3	UN2374	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	N,N-Diethyl aniline	6.1	UN2432	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	A	
	Diethyl carbonate	3	UN2366	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Diethyl cellosolve, see Ethylene glycol diethyl ether												
	Diethyl ether *or* Ethyl ether	3	UN1155	I	FLAMMABLE LIQUID	T21	*150*	*201*	*243*	1 L	30 L	E	40
	Diethyl ketone	3	UN1156	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Diethyl peroxydicarbonate, more than 27 per cent in solution.	Forbidden											
	Diethyl sulfate	6.1	UN1594	II	POISON	T14	None	202	243	5 L	60 L	C	
	Diethyl sulfide	3	UN2375	II	FLAMMABLE LIQUID	T14	None	202	243	1 L	60 L	E	
	Diethylamine	3	UN1154	II	FLAMMABLE LIQUID	N34, T8	150	202	242	5 L	60 L	E	
	Diethylaminoethanol	3	UN2686	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
AW	Diethylaminopropylamine	8	UN2684	III	CORROSIVE, FLAMMABLE LIQUID.	B1, B2, T8	154	203	243	5 L	60 L	A	12, 21, 48
	Diethylbenzene	3	UN2049	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Diethyldichlorosilane	8	UN1767	II	CORROSIVE, FLAMMABLE LIQUID.	A7, B6, N34, T8, T26.	None	202	243	Forbidden	30 L	C	21, 40
	Diethylene glycol dinitrate	Forbidden											
	Diethyleneglycol dinitrate, desensitized *with not less than 25 percent non-volatile water-insoluble phlegmatizer, by mass.*	1.1D	UN0075	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 4E, 21E
	Diethylenetriamine	8	UN2079	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	40

	N,N-Diethylethylenediamine	8	UN2685	II	CORROSIVE, FLAMMABLE LIQUID.	T8	None	202	243	1 L	30 L	A	12, 21, 48
	Diethylgold bromide	Forbidden											
	Diethylthiophosphoryl chloride	8	UN2751	II	CORROSIVE	B2, T8	None	202	242	15 kg	50 kg	D	12, 40
	Diethylzinc	4.2	UN1366	I	SPONTANEOUSLY COMBUSTIBLE	B11, T28, T40	None	181	244	Forbidden	Forbidden	D	18
	Difluorochloroethanes, *see* Chlorodifluoroethanes												
	Difluoroethane, *R152a*	2.1	UN1030		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40
	1,1-Difluoroethylene, *R1132a*	2.1	UN1959		FLAMMABLE GAS		306	304	None	Forbidden	150 kg	E	40
	Difluorophosphoric acid, anhydrous	8	UN1768	II	CORROSIVE	A6, A7, B2, N5, N34, T9, T27.	None	202	242	1 L	30 L	A	40
	2,3-Dihydropyran	3	UN2376	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	
	1,8-Dihydroxy-2,4,5,7-tetranitroanthraquinone (chrysamminic acid).	Forbidden											
	Diiodoacetylene	Forbidden											
	Diisobutyl ketone	3	UN1157	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Diisobutylamine	3	UN2361	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Diisobutylene, isomeric compounds	3	UN2050	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Diisooctyl acid phosphate	8	UN1902	III	CORROSIVE	T7	154	203	241	5 L	60 L	A	
	Diisopropyl ether	3	UN1159	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	40
	Diisopropylamine	3	UN1158	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Diisopropylbenzene hydroperoxide, more than 72 percent in solution.	Forbidden											
+	Diketene, inhibited	3	UN2521	III	FLAMMABLE LIQUID, POISON.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	60 L	220 L	A	49
	1,1-Dimethoxyethane	3	UN2377	II	FLAMMABLE LIQUID	T13	150	202	242	5 L	60 L	B	
	1,2-Dimethoxyethane	3	UN2252	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Dimethyl carbonate	3	UN1161	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Dimethyl chlorothiophosphate, see Dimethyl thiophosphoryl chloride.												
	2,5-Dimethyl-2,5-dihydroperoxy hexane, more than 82 per cent with water.	Forbidden											
	Dimethyl disulfide	3	UN2381	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40
	Dimethyl ether	2.1	UN1033		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40
	Dimethyl-N-propylamine	3	UN2266	II	FLAMMABLE LIQUID, CORROSIVE.	T14, T26	None	202	243	1 L	5 L	B	40
	Dimethyl sulfate	6.1	UN1595	I	POISON, CORROSIVE.	2, B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	Forbidden	2.5 L	D	40
	Dimethyl sulfide	3	UN1164	II	FLAMMABLE LIQUID	T14	None	201	243	1 L	30 L	E	40
	Dimethyl thiophosphoryl chloride	8	UN2267	III	CORROSIVE	T7	None	203	241	5 L	60 L	B	6
	Dimethylamine, anhydrous	2.1	UN1032		FLAMMABLE GAS		None	304	314, 315	Forbidden	Forbidden	D	40
	Dimethylamine solution	3	UN1160	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	4-Dimethylamino-6-(2-dimethylaminoethoxy) toluene-2-diazonium zinc chloride.	4.1	UN3039	II	FLAMMABLE SOLID		None	224	None	Forbidden	Forbidden	D	2
	2-Dimethylaminoacetonitrile	3	UN2378	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	A	26, 40
	Dimethylaminoethyl methacrylate	6.1	UN2522	II	POISON	T8	None	202	243	5 L	60 L	B	40
	N,N-Dimethylaniline	6.1	UN2253	II	POISON	T8	None	202	243	5 L	60 L	A	
	2,3-Dimethylbutane	3	UN2457	II	FLAMMABLE LIQUID	T13	150	202	242	5 L	60 L	E	
	1,3-Dimethylbutylamine	3	UN2379	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Dimethylcarbamoyl chloride	8	UN2262	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	40
	Dimethylcyclohexanes	3	UN2263	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Dimethylcyclohexylamine	8	UN2264	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	12, 21, 40, 48
	Dimethyldichlorosilane	3	UN1162	I	FLAMMABLE LIQUID, CORROSIVE.	B77, T15, T26	None	201	243	Forbidden	Forbidden	B	40
	Dimethyldiethoxysilane	3	UN2380	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Dimethyldioxanes	3	UN2707	II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Dimethylethanolamine	3	UN2051	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	N,N-Dimethylformamide	3	UN2265	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Dimethylhexane dihydroperoxide (dry)	Forbidden											
+	Dimethylhydrazine, symmetrical	3	UN2382	I	FLAMMABLE LIQUID, POISON.	2, A7, B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	Forbidden	30 L	E	40
	Dimethylhydrazine, unsymmetrical	6.1	UN1163	I	POISON, FLAMMABLE LIQUID, CORROSIVE.	2, A7, B9, B14, B32, B58, B79, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	21, 40, 49, 61, 100
	2,2-Dimethylpropane *other than pentane and isopentane.*	2.1	UN2044		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	E	40
	Dimethylzinc	4.2	UN1370	I	SPONTANEOUSLY COMBUSTIBLE.	B11, B16, T28, T29, T40.	None	181	244	Forbidden	Forbidden	D	18
	Dinitro-o-cresol, *solid*	6.1	UN1598	II	POISON	T14	None	212	242	25 kg	100 kg	A	
	Dinitro-o-cresol, *solution*	6.1	UN1598	II	POISON	T14	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-tetramethylolbutanetetranitrate (dry).	Forbidden											
	2,4-Dinitro-1,3,5-trimethylbenzene	Forbidden											
	Dinitroanilines	6.1	UN1596	II	POISON	T14	None	212	242	25 kg	100 kg	A	91
	Dinitrobenzenes, *liquid*	6.1	UN1597	II	POISON	11, T14	None	202	243	5 L	60 L	A	91
	Dinitrobenzenes, *solid*	6.1	UN1597	II	POISON	11	None	212	242	25 kg	100 kg	A	91
	Dinitrochlorobenzene, see Chlorodinitrobenzene												
	1,2-Dinitroethane	Forbidden											
	1,1-Dinitroethane (dry)	Forbidden											
	Dinitrogen tetroxide, liquefied	2.3	UN1067		POISON GAS, OXIDIZER.	1, B7, B12, B14, B45, B46, B61, B66, B67, B77.	None	336	314	Forbidden	Forbidden	D	40, 43
	Dinitroglycoluril	Forbidden											
	Dinitroglycoluril *or* Dingu	1.1D	UN0489	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 25E
	Dinitromethane	Forbidden											
	Dinitrophenol, *dry or wetted with less than 15 per cent water, by mass.*	1.1D	UN0076	II	EXPLOSIVE 1.1D, POISON.		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Dinitrophenol solutions	6.1	UN1599	II	POISON	T8	None	202	243	5 L	60 L	A	36
	Dinitrophenol, wetted *with not less than 15 per cent water, by mass.*	4.1	UN1320	I	FLAMMABLE SOLID, POISON.	A8, A19, A20, N41.	None	211	None	1 kg	15 kg	E	28, 36
	Dinitrophenolates *alkali metals, dry or wetted with less than 15 per cent water, by mass.*	1.3C	UN0077	II	EXPLOSIVE 1.3C, POISON.		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Dinitrophenolates, wetted *with not less than 15 per cent water, by mass.*	4.1	UN1321	I	FLAMMABLE SOLID, POISON.	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 per cent water, by mass.*	1.1D	UN0078	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	4,6-Dinitroresorcinol (heavy metal salts of) (dry)	Forbidden											
	2,4-Dinitroresorcinol (heavy metal salts of) (dry)	Forbidden											
	Dinitroresorcinol, wetted *with not less than 15 per cent water, by mass.*	4.1	UN1322	I	FLAMMABLE SOLID	A8, A19, A20, N41.	None	211	None	1 kg	15 kg	E	28, 36
	3,5-Dinitrosalicylic acid (lead salt) (dry)	Forbidden											

	N,N'-Dinitroso-N,N'-dimethyl terephthalamide *not more than 72% as a paste.*	4.1	UN2973	II	FLAMMABLE SOLID, EXPLOSIVE.	41, 53	None	224	None	Forbidden	Forbidden	D	12, 61
	Dinitrosobenzene	1.3C	UN0406	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Dinitrosobenzylamidine and salts of (dry)	Forbidden											
	N,N'-Dinitrosopentamethylenetetramine *not more than 82% with phlegmatizer.*	4.1	UN2972	II	FLAMMABLE SOLID, EXPLOSIVE.	41, 53	None	224	None	Forbidden	Forbidden	D	12, 61
	2,2-Dinitrostilbene	Forbidden											
	Dinitrotoluenes, *liquid*	6.1	UN2038	II	POISON	T8	None	202	243	5 L	60 L	A	
	Dinitrotoluenes, molten	6.1	UN1600	II	POISON	T14	None	202	243	Forbidden	Forbidden	C	
	Dinitrotoluenes, *solid*	6.1	UN2038	II	POISON	T8	None	212	242	25 kg	100 kg	A	
	1,9-Dinitroxy pentamethylene-2,4, 6,8-tetramine (dry).	Forbidden											
	Dioxane	3	UN1165	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Dioxolane	3	UN1166	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40
	Dipentene	3	UN2052	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Diphenylamine chloroarsine	6.1	UN1698	I	POISON		None	201	None	Forbidden	Forbidden	D	40
	Diphenylchlorarsine, solid *or* liquid	6.1	UN1699	I	POISON	A8, B14, B32, N33, N34.	None	211	244	Forbidden	15 kg	D	40
	Diphenyldichlorosilane	8	UN1769	II	CORROSIVE	A7, B2, N34, T8, T26.	None	202	244	Forbidden	30 L	C	40
	Diphenylmethane-4,4'diisocyanate	6.1	UN2489	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	A	48, 108
	Diphenylmethyl bromide	8	UN1770	II	CORROSIVE		154	212	240	15 kg	50 kg	D	40
	Diphenyloxide-4,4'disulfohydrazide	4.1	UN2951	II	FLAMMABLE SOLID		None	224	None	15 kg	50 kg	B	12, 61, 85
	Dipicryl sulfide, *dry or wetted with less than 10 per cent water, by mass.*	1.1D	UN0401	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Dipicryl sulfide, wetted *with not less than 10 per cent water, by mass.*	4.1	UN2852	I	FLAMMABLE SOLID	A2, N41	None	211	None	Forbidden	0.5 kg	D	28, 36
	Dipicrylamine, *see* Hexanitrodiphenylamine												
	Dipropionyl peroxide, more than 28 per cent in solution.	Forbidden											
	Dipropyl ether	3	UN2384	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Dipropylamine	3	UN2383	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	4-Dipropylaminobenzenediazonium zinc chloride	4.1	UN3034	II	FLAMMABLE SOLID		None	224	None	15 kg	50 kg	C	
	Dipropylketone	3	UN2710	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Disinfectants, corrosive liquid, n.o.s.	8	UN1903	II	CORROSIVE	B2	154	202	242	1 L	30 L	A	
				III	CORROSIVE		154	203	241	5 L	60 L	A	40
	Disinfectants, liquid, n.o.s *poisonous*	6.1	UN3142	I	POISON	A4, T42	None	201	243	1 L	30 L	A	40
				II	POISON	T14	None	202	243	5 L	60 L	A	40
				III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	40
	Disinfectants, solid, n.o.s. *poisonous*	6.1	UN1601	II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Dispersant gases, n.o.s. *see* Refrigerant gases, n.o.s.												
	Dithiocarbamate pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2772	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	40
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	40
	Dithiocarbamate pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3005	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	T14	153	203	241	60 L	220 L	A	40
	Dithiocarbamate pesticides, liquid, toxic, n.o.s.	6.1	UN3006	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Dithiocarbamate pesticides, solid, toxic, n.o.s.	6.1	UN2771	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Divinyl ether, inhibited	3	UN1167	I	FLAMMABLE LIQUID	T14	None	202	241	5 L	60 L	E	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
D	Dodecylbenzenesulfonic acid	8	NA2584	II	CORROSIVE	B2	154	202	242	1 L	30 L	B	9
	Dodecyltrichlorosilane	8	UN1771	II	CORROSIVE	A7, B2, B6, N34, T8, T28.	None	202	242	Forbidden	30 L	C	40
	Dry ice, *see* Carbon dioxide, solid												
	Dyes, liquid, n.o.s. *or* dye intermediates, liquid, n.o.s. *corrosive.*	8	UN2801	II	CORROSIVE	11, B2, T14	154	202	242	1 L	30 L	A	23
				III	CORROSIVE	11, T7	154	203	241	5 L	60 L	A	23
	Dyes,liquid, n.o.s *or* dye intermediates, liquid, n.o.s. *poisonous.*	6.1	UN1602	II	POISON		None	202	243	5 L	60 L	A	
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220	A	
	Dyes, solid, n.o.s. *or* Dye intermediates, solid, n.o.s. *corrosive.*	8	UN3147	II	CORROSIVE		154	212	240	15 kg	50 kg	A	
				III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Dyes, solid, n.o.s. *or* dye intermediates, solid, n.o.s. *poisonous.*	6.1	UN3143	I	POISON	A5	None	211	242	5kg	50kg	A	
				II	POISON		None	212	242	25 kg	100 kg	A	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Dynamite, see Explosive, blasting, type A												
	Electrolyte (acid or alkali) for batteries, see Battery fluid, acid *or* Battery fluid, alkali.												
	Engine starting fluid, *with flammable gas*	2.1	UN1960		FLAMMABLE GAS		None	304	None	Forbidden	150 kg	D	40
	Engines, internal combustion, *see* Vehicle, self-propelled.												
	Environmentally hazardous substances, liquid, n.o.s.	9	UN3082	III	CLASS 9	8, T1	155	203	241	None	None	A	
	Environmentally hazardous substances, solid, n.o.s.	9	UN3077	III	CLASS 9	8, B54	155	213	240	None	None	A	
	Epibromohydrin	6.1	UN2558	I	POISON	T18, T26	None	201	243	Forbidden	Forbidden	D	40
	Epichlorohydrin	6.1	UN2023	II	POISON	T14	None	202	243	5 L	60 L	A	40
	1,2-Epoxy-3-ethoxypropane	3	UN2752	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Etching acid, liquid, n.o.s., see Hydrofluoric acid, solution *etc.*												
	Ethane, compressed	2.1	UN1035		FLAMMABLE GAS		306	304	302	Forbidden	150 kg	E	40
D	Ethane-Propane mixture, refrigerated liquid	2.1	NA1961		FLAMMABLE GAS		None	316	314, 315	Forbidden	Forbidden	D	40
	Ethane, refrigerated liquid	2.1	UN1961		FLAMMABLE GAS		None	None	315	Forbidden	Forbidden	D	40
	Ethanol amine dinitrate	Forbidden											
	Ethanol *or* Ethyl alcohol *or* Ethanol solutions *or* Ethyl alcohol solutions.	3	UN1170	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	A	
				III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Ethanolamine *or* Ethanolamine solutions	8	UN2491	III	CORROSIVE	T7	154	203	241	5 L	60 L	A	
	Ether, see Diethyl ether												
	Ethyl acetate	3	UN1173	II	FLAMMABLE LIQUID	T2	150	202	242	5 L	60 L	B	
	Ethyl acrylate, inhibited	3	UN1917	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40
	Ethyl alcohol, *see* Ethanol												
	Ethyl aldehyde, see Acetaldehyde												
	Ethyl amyl ketone	3	UN2271	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	N-Ethyl-N-benzylaniline	6.1	UN2274	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	A	
	Ethyl borate	3	UN1176	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Ethyl bromide	6.1	UN1891	II	POISON	T17	None	202	243	5 L	60 L	B	40
	Ethyl bromoacetate	6.1	UN1603	II	POISON	T14	None	202	243	Forbidden	Forbidden	D	40
	Ethyl butyl ether	3	UN1179	II	FLAMMABLE LIQUID	B1, T1	150	202	242	5 L	60 L	B	
	Ethyl butyrate	3	UN1180	III	FLAMMABLE LIQUID	B1, T1	150	202	242	5 L	60 L	A	

	Ethyl chloride	2.1	UN1037		FLAMMABLE GAS	B63, B77	None	322	314, 315	Forbidden	150 kg	B	40	
	Ethyl chloroacetate	6.1	UN1181	II	POISON	T14	None	202	243	5 L	60 L	A		
	Ethyl chloroformate	6.1	UN1182	I	POISON, FLAMMABLE LIQUID, CORROSIVE.	2, A3, A6, A7, B9, B14, B32, B74, N34, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	21, 40, 100	
	Ethyl-2-chloropropionate	3	UN2935	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
+	Ethyl chlorothioformate	8	UN2826	II	CORROSIVE, POISON.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	1 L	30 L	A	12, 21, 40, 48	
	Ethyl crotonate	3	UN1862	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
	Ethyl cyanoacetate	6.1	UN2666	III	KEEP AWAY FROM FOOD.	T6	153	203	241	60 L	220 L	A	26	
	Ethyl ether, *see* Diethyl ether													
	Ethyl fluoride	2.1	UN2453		FLAMMABLE GAS		306	304	314, 315	75 kg	150 kg	E	40	
	Ethyl formate	3	UN1190	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E		
	Ethyl hydroperoxide	Forbidden												
	Ethyl isobutyrate	3	UN2385	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
+	Ethyl isocyanate	3	UN2481	I	FLAMMABLE LIQUID, POISON.	1, A7, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	30 L	D	40	
	Ethyl lactate	3	UN1192	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	Ethyl mercaptan	3	UN2363	I	FLAMMABLE LIQUID	T21	None	201	243	Forbidden	30 L	E	95, 102	
	Ethyl methacrylate	3	UN2277	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
	Ethyl methyl ether	2.1	UN1039		FLAMMABLE GAS	B63	None	324	314, 315	Forbidden	150 kg	B	40	
	Ethyl methyl ketone *or* Methyl ethyl ketone	3	UN1193	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B		
	Ethyl nitrite solutions	3	UN1194	I	FLAMMABLE LIQUID, POISON.		None	201	None	Forbidden	Forbidden	E	40, 105	
	Ethyl orthoformate	3	UN2524	III	FLAMMABLE LIQUID	B1, T7	150	203	242	60 L	220 L	A		
	Ethyl oxalate	6.1	UN2525	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	A		
	Ethyl perchlorate	Forbidden												
D	Ethyl phosphonothioic dichloride, anhydrous	6.1	NA2927	I	POISON, CORROSIVE.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	20, 40, 95	
D	Ethyl phosphonous dichloride, anhydrous *pyrophoric liquid.*	6.1	NA2845	I	POISON, SPONTANEOUSLY COMBUSTIBLE.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	18	
D	Ethyl phosphorodichloridate	6.1	NA2927	I	POISON, CORROSIVE.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	20, 40, 95	
	Ethyl propionate	3	UN1195	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
	Ethyl propyl ether	3	UN2615	II	FLAMMABLE LIQUID	T6	150	202	242	5 L	60 L	E		
	Ethyl silicate, see Tetraethyl silicate													
	Ethylacetylene, inhibited	2.1	UN2452		FLAMMABLE GAS		None	304	314, 315	Forbidden	150 kg	B	40	
	Ethylamine	2.1	UN1036		FLAMMABLE GAS	B77	None	321	314, 315	Forbidden	Forbidden	D	40	
	Ethylamine, aqueous solution *with not less than 50 per cent but not more than 70 per cent ethylamine.*	3	UN2270	II	FLAMMABLE LIQUID	T14	150	202	242	5 L	60 L	B	40	
	N-Ethylaniline	6.1	UN2272	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	A		
	2-Ethylaniline	6.1	UN2273	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	A		
	Ethylbenzene	3	UN1175	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
	N-Ethylbenzyltoluidines solid *or* liquid	6.1	UN2753	III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A		
	2-Ethylbutanol	3	UN2275	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	2-Ethylbutyl acetate	3	UN1177	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	2-Ethylbutyraldehyde	3	UN1178	II	FLAMMABLE LIQUID	B1, T1	150	202	242	5 L	60 L	B		
	Ethyldichloroarsine	6.1	UN1892	I	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	40	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or rail car	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Ethyldichlorosilane	4.3	UN1183	I	DANGEROUS WHEN WET, CORROSIVE, FLAMMABLE LIQUID.	A2, A9, A7, N34, T18, T26.	None	291	244	Forbidden	1 L	D	21, 26, 40, 49, 100
	Ethylene, acetylene and propylene in mixtures, refrigerated liquid containing at least 71.5 per cent ethylene with not more than 22.5 per cent acetylene and not more than 6 per cent propylene.	2.1	UN3138		FLAMMABLE GAS		None	304	314, 315	Forbidden	Forbidden	D	40
+	Ethylene chlorohydrin	6.1	UN1135	II	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	60 L	A	40
	Ethylene, compressed	2.1	UN1962		FLAMMABLE GAS		306	304	302	Forbidden	150 kg	E	40
	Ethylene diamine diperchlorate	Forbidden											
+	Ethylene dibromide	6.1	UN1605	II	POISON	2, B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	5 L	60 L	A	40
	Ethylene dibromide and methyl bromide liquid mixtures, see Methyl bromide and ethylene dibromide, liquid mixtures.												
	Ethylene dichloride	3	UN1184	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	1 L	60 L	B	40
	Ethylene glycol diethyl ether	3	UN1153	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Ethylene glycol dinitrate	Forbidden											
	Ethylene glycol monobutyl ether	6.1	UN2369	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	A	
	Ethylene glycol monoethyl ether	3	UN1171	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Ethylene glycol monoethyl ether acetate	3	UN1172	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Ethylene glycol monomethyl ether	3	UN1188	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Ethylene glycol monomethyl ether acetate	3	UN1189	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Ethylene oxide and carbon dioxide mixtures, see Carbon dioxide and ethylene oxide mixtures, *etc.*.												
	Ethylene oxide and propylene oxide mixtures, *not more than 30 per cent ethylene oxide.*	3	UN2983	I	FLAMMABLE LIQUID, POISON.	5, A11, N4, N34, T24, T29.	None	201	243	Forbidden	30 L	E	40
	Ethylene oxide, *pure or with nitrogen*	2.3	UN1040		POISON GAS, FLAMMABLE GAS.	3	None	323	323	Forbidden	25 kg	D	40
	Ethylene, refrigerated liquid (*cryogenic liquid*)	2.1	UN1038		FLAMMABLE GAS		None	316	318, 315	Forbidden	Forbidden	D	40
	Ethylenediamine	8	UN1604	II	CORROSIVE, FLAMMABLE LIQUID.	T14	154	202	243	1 L	30 L	A	12, 21, 40, 48
	Ethyleneimine, inhibited	6.1	UN1185	I	POISON, FLAMMABLE LIQUID.	1, B9, B14, B30, B72, B77, N25, N32, T39, T43, T44,	None	226	244	Forbidden	Forbidden	D	40
	Ethylhexaldehyde, see Octyl aldehydes *etc.*												
	2-Ethylhexylamine	8	UN2276	III	CORROSIVE	T2	154	203	241	5 L	60 L	A	12, 21, 40, 48
	2-Ethylhexylchloroformate	6.1	UN2748	II	POISON, CORROSIVE.	T42	None	202	243	1 L	30 L	A	12, 13, 25, 40, 48, 95
	Ethylphenyldichlorosilane	8	UN2435	II	CORROSIVE	A7, B2, N34, T8, T26.	None	202	242	Forbidden	30 L	C	
	1-Ethylpiperidine	3	UN2386	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Ethylsulfuric acid	8	UN2571	II	CORROSIVE	B2, T9, T27	154	202	242	1 L	30 L	C	14
	N-Ethyltoluidines	6.1	UN2754	II	POISON	T14	None	202	243	5 L	60 L	A	48

	Ethyltrichlorosilane	3	UN1196	II	FLAMMABLE LIQUID, CORROSIVE.	A7, N34, T15, T26.	None	201	243	Forbidden	2.5 L	B	40
	Etiologic agent, see Infectious substances, *etc.*)												
	Explosive articles, see Articles, explosive, n.o.s. *etc.*.												
	Explosive, blasting, type A	1.1D	UN0081	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E, 21E
	Explosive, blasting, type B	1.1D	UN0082	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Explosive, blasting, type B *or* Agent blasting, Type B.	1.5D	UN0331	II	EXPLOSIVE 1.5D	105, 106	None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Explosive, blasting, type C	1.1D	UN0083	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 22E
	Explosive, blasting, type D	1.1D	UN0084	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Explosive, blasting, type E	1.1D	UN0241	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Explosive, blasting, type E *or* Agent blasting, Type E.	1.5D	UN0332	II	EXPLOSIVE 1.5D	105, 106	None	62	None	Forbidden	Forbidden	B	1E, 5E
	Explosive, forbidden. See Sec. 173.51	Forbidden											
D	Explosive pest control devices	1.1E	NA0006	II	EXPLOSIVE 1.1E		None	62	None	Forbidden	Forbidden	E	
D	Explosive pest control devices	1.4E	NA0412	II	EXPLOSIVE 1.4E		None	62	None	Forbidden	75 kg	A	24E
	Explosive substances, see Substances, explosive, n.o.s. *etc.*.												
	Explosives, slurry, see Explosive, blasting, type E												
	Explosives, water gels, see Explosive, blasting, type E.												
	Extracts, aromatic, liquid	3	UN1169	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Extracts, flavoring, liquid	3	UN1197	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Fabric with animal or vegetable oil, see Fibers *or* fabrics, *etc.*												
	Ferric arsenate	6.1	UN1606	II	POISON		None	212	242	25 kg	100 kg	A	
	Ferric arsenite	6.1	UN1607	II	POISON		None	212	242	25 kg	100 kg	A	
	Ferric chloride	8	UN1773	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Ferric chloride, solution	8	UN2582	III	CORROSIVE	B15, T8	154	203	241	5 L	60 L	A	
	Ferric nitrate	5.1	UN1466	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	
	Ferrocerium	4.1	UN1323	II	FLAMMABLE SOLID	A19	151	212	240	15 kg	50 kg	A	
	Ferrosilicon, *with 30 percent or more but less than 90 percent silicon.*	4.3	UN1408	III	DANGEROUS WHEN WET.	A1, A19	None	213	240	25 kg	100 kg	A	13, 40, 85, 103
	Ferrous arsenate	6.1	UN1608	II	POISON		None	212	242	25 kg	100 kg	A	
D	Ferrous chloride, solid	8	NA1759	II	CORROSIVE		154	212	240	15 kg	50 kg	A	
D	Ferrous chloride, solution	8	NA1760	II	CORROSIVE	B3	154	202	242	1 L	30 L	B	40
	Ferrous metal borings, shavings, turnings *or* cuttings *in a form liable to self-heating.*	4.2	UN2793	III	SPONTANEOUSLY COMBUSTIBLE.	A1, A19	None	213	241	25 kg	100 kg	A	
	Fertilizer ammoniating solution *with free ammonia*	2.2	UN1043		NONFLAMMABLE GAS.		306	304	314, 315	Forbidden	150 kg	E	40
AIW	Fibers *or* Fabrics, animal *or* vegetable, n.o.s. *with animal or vegetable oil.*	4.2	UN1373	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	A	
	Films, nitrocellulose base, from which gelatine has been removed; film scrap, see Celluloid scrap.												
	Films, nitrocellulose base, *gelatine coated (except scrap).*	4.1	UN1324	III	FLAMMABLE SOLID		None	183	None	25 kg	100 kg	D	91
	Fire extinguisher charges, *corrosive liquid*	8	UN1774	II	CORROSIVE	N41	154	202	None	1 L	30 L	A	
	Fire extinguisher charges, expelling, explosive, see Cartridges, power device.												
	Fire extinguishers *containing compressed or liquefied gas.*	2.2	UN1044		NONFLAMMABLE GAS.		306	306	None	75 kg	150 kg	A	
	Firelighters, solid *with flammable liquid*	4.1	UN2623	II	FLAMMABLE SOLID	A19	None	212	None	15 kg	50 kg	A	119
				III	FLAMMABLE SOLID	A1, A19	None	213	None	25 kg	100 kg	A	119
	Fireworks	1.1G	UN0333	II	EXPLOSIVE 1.1G	108	None	62	None	Forbidden	Forbidden	B	
	Fireworks	1.2G	UN0334	II	EXPLOSIVE 1.2G	108	None	62	None	Forbidden	Forbidden	B	
	Fireworks	1.3G	UN0335	II	EXPLOSIVE 1.3G	108	None	62	None	Forbidden	Forbidden	B	
	Fireworks	1.4G	UN0336	II	EXPLOSIVE 1.4G	108	None	62	None	Forbidden	75 kg	A	24E
	Fireworks	1.4S	UN0337	II	EXPLOSIVE 1.4S	108	None	62	None	25 kg	100 kg	A	9E

§ 172.101 Hazardous Materials Table—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
W	Fish meal *or* Fish scrap stabilized	9	UN2216	III	None	A1	155	216	216	No limit	No limit	A	88, 120
	Fish meal, unstabilized *or* Fish scrap, unstabilized	4.2	UN1374	II	SPONTANEOUSLY COMBUSTIBLE.	A1, A19	None	212	241	15 kg	50 kg	A	119, 120
	Fissile radioactive materials, see Radioactive material, fissile, n.o.s.												
	Flammable compressed gas, see Compressed *or* Liquefied gas, flammable, *etc.*.												
	Flammable compressed gas (small receptacles not fitted with a dispersion device, not refillable), see Receptacles, *etc.*.												
	Flammable gas in lighters, *see* Lighters for cigars *or* cigarettes, *with flammable gas.*												
	Flammable liquids, corrosive, n.o.s.	3	UN2924	I	FLAMMABLE LIQUID, CORROSIVE.	T42	None	201	243	0.5 L	2.5 L	E	40
				II	FLAMMABLE LIQUID, CORROSIVE.	T15, T26	None	202	243	1 L	5 L	B	40
				III	FLAMMABLE LIQUID, CORROSIVE.	B1, T15, T26	150	203	242	5 L	60 L	A	40
	Flammable liquids, n.o.s.	3	UN1993	I	FLAMMABLE LIQUID.	T42	150	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID.	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID.	B1, B52, T7, T30.	150	203	242	60 L	220 L	A	
	Flammable liquids, poisonous, n.o.s.	3	UN1992	I	FLAMMABLE LIQUID, POISON.	T42	None	201	243	Forbidden	30 L	E	40
				II	FLAMMABLE LIQUID, POISON.	T18	None	202	243	1 L	60 L	B	40
	Flammable solids, corrosive, n.o.s.	4.1	UN2925	II	FLAMMABLE SOLID, CORROSIVE.		None	212	242	15 kg	50 kg	D	40
				III	FLAMMABLE SOLID, CORROSIVE.	A1	151	213	242	25 kg	100 kg	D	40
	Flammable solids, n.o.s.	4.1	UN1325	II	FLAMMABLE SOLID.		151	212	240	15 kg	50 kg	B	
				III	FLAMMABLE SOLID.		151	213	240	25 kg	100 kg	B	
	Flammable solids, poisonous, n.o.s.	4.1	UN2926	II	FLAMMABLE SOLID, POISON.		None	212	242	15 kg	50 kg	B	40
				III	FLAMMABLE SOLID, KEEP AWAY FROM FOOD.	A1	151	213	242	25 kg	100 kg	B	40
	Flares, aerial	1.3G	UN0093	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	75 kg	B	
	Flares, aerial	1.4G	UN0403	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E
	Flares, aerial	1.4S	UN0404	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	Flares, aerial	1.1G	UN0420	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	
	Flares, aerial	1.2G	UN0421	II	EXPLOSIVE 1.2G		None	62	None	Forbidden	Forbidden	B	
	Flares, airplane, see Flares, aerial												
	Flares, signal, see Cartridges, signal												
	Flares surface	1.1G	UN0418	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	
	Flares, surface	1.2G	UN0419	II	EXPLOSIVE 1.2G		None	62	None	Forbidden	Forbidden	B	
	Flares, surface	1.3G	UN0092	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	75 kg	B	
	Flares, water-activated, see Contrivances, water-activated, *etc.*.												
	Flash powder	1.1G	UN0094	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Flash powder	1.3G	UN0305	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	Forbidden	B	1E, 5E

	Flue dusts, poisonous, see Arsenical dust													
	Fluoboric acid	8	UN1775	II	CORROSIVE	A6, A7, B2, B15, N3, N34, T15, T27.	154	202	242	1 L	30 L	A		
	Fluoric acid, see Hydrofluoric acid, solution, *etc.*													
	Fluorine, compressed	2.3	UN1045		POISON GAS, OXIDIZER.	1	None	302	None	Forbidden	Forbidden	D		40
	Fluoroacetic acid	6.1	UN2642	I	POISON		None	211	242	1 kg	15 kg	E		
	Fluoroanilines	6.1	UN2941	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	A		
	Fluorobenzene	3	UN2387	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B		
	Fluorophosphoric acid anhydrous	8	UN1776	II	CORROSIVE	A6, A7, B2, N3, N34, T9, T27.	None	202	242	1 L	30 L	A		
	Fluorosilicates, n.o.s.	6.1	UN2856	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A		26
	Fluorosilicic acid	8	UN1778	II	CORROSIVE	A6, A7, B2, B15, N3, N34, T12, T27.	None	202	242	1 L	30 L	A		
	Fluorosulfonic acid	8	UN1777	I	CORROSIVE	A3, A6, A7, A10, B6, B10, B41, N3, T9, T27.	None	201	242	0.5 L	2.5 L	D		40
	Fluorotoluenes	3	UN2388	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B		40
	Forbidden materials. See 173.21	Forbidden												
	Formaldehyde, solutions	9	UN2209	III	None	T1	155	204	240	100 L	220 L	A		
	Formaldehyde, solutions, *flammable*	3	UN1198	III	FLAMMABLE LIQUID	B1, T8	150	203	242	60 L	220 L	A		40
	Formalin, see Formaldehyde, solutions													
	Formic acid	8	UN1779	II	CORROSIVE	B2, B12, B28, T8.	154	202	242	1 L	30 L	A		40
	Fracturing devices, explosive, *without detonators for oil wells,*	1.1D	UN0099	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		
D	Fusee (*railway or highway*)	4.1	NA1325	II	FLAMMABLE SOLID		None	184	None	15 kg	50 kg	B		
	Fuel, aviation, turbine engine	3	UN1863	I	FLAMMABLE LIQUID	T7	150	201	243	1 L	30 L	E		
				II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
				III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
D	Fuel oil (*No. 1, 2, 4, 5, or 6*)	3	NA1993	III	FLAMMABLE LIQUID	B1	150	203	241	60 L	220 L	A		
	Fulminate of mercury (dry)	Forbidden												
	Fulminate of mercury, wet, see Mercury fulminate, *etc.*													
	Fulminating gold	Forbidden												
	Fulminating mercury	Forbidden												
	Fulminating platinum	Forbidden												
	Fulminating silver	Forbidden												
	Fulminic acid	Forbidden												
	Fumaryl chloride	8	UN1780	II	CORROSIVE	B2, T8, T26	154	202	242	1 L	30 L	C		8, 40
	Furan	3	UN2389	I	FLAMMABLE LIQUID	T18	None	201	242	1 L	30 L	E		40
	Furfural	3	UN1199	III	FLAMMABLE LIQUID	B1, T1	150	203	241	60 L	220 L	A		
	Furfuryl alcohol	6.1	UN2874	III	KEEP AWAY FROM FOOD.	T2	153	203	240	60 L	220 L	A		26, 74
	Furfurylamine	3	UN2526	III	FLAMMABLE LIQUID	B1, T1	150	203	241	60 L	220 L	A		40
	Fuse, detonating, *metal clad, see* Cord, detonating, *metal clad.*													
	Fuse, detonating, mild effect, *metal clad, see* Cord, detonating, mild effect, *metal clad.*													
	Fuse, igniter *tubular metal clad*	1.4G	UN0103	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A		24E
	Fuse, instantaneous, non-detonating *or* Quickmatch	1.3G	UN0101	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	Forbidden	B		
	Fuse, safety	1.4S	UN0105	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A		9E
	Fusel oil	3	UN1201	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
				III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	Fuses, tracer, see Tracers for ammunition													
	Fuzes, combination, percussion and time, see Fuzes, detonating (*UN 0257, UN 0367*); Fuzes, igniting (UN 0317, UN 0368).													
	Fuzes, detonating	1.1B	UN0106	II	EXPLOSIVE 1.1B		None	62	None	Forbidden	Forbidden	B		2E, 6E
	Fuzes, detonating	1.2B	UN0107	II	EXPLOSIVE 1.2B		None	62	None	Forbidden	Forbidden	B		2E, 6E
	Fuzes, detonating	1.4B	UN0257	II	EXPLOSIVE 1.4B	116	None	62	None	Forbidden	75 kg	A		24E

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Fuzes, detonating	1.4S	UN0367	II	EXPLOSIVE 1.4S	116	None	62	None	25 kg	100 kg	A	9E
	Fuzes, detonating, *with protective features*	1.1D	UN0408	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	
	Fuzes, detonating, *with protective features*	1.2D	UN0409	II	EXPLOSIVE 1.2D		None	62	None	Forbidden	Forbidden	B	
	Fuzes, detonating, *with protective features*	1.4D	UN0410	II	EXPLOSIVE 1.4D	116	None	62	None	Forbidden	75 kg	A	24E
	Fuzes, igniting	1.3G	UN0316	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	Forbidden	B	
	Fuzes, igniting	1.4G	UN0317	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	B	
	Fuzes, igniting	1.4S	UN0368	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	Galactsan trinitrate	Forbidden											
	Gallium	8	UN2803	III	CORROSIVE		None	162	240	20 kg	20 kg	B	48
	Gas drips, *hydrocarbon*	3	UN1864	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B	
	Gas generator assemblies (aircraft), *containing a non-flammable non-toxic gas and a propellant cartridge.*	2.2			NONFLAMMABLE GAS		None	335	None	75 kg	150 kg	A	
D	Gas identification set	2.3	NA9035		POISON GAS	6	None	194	None	Forbidden	Forbidden	D	
	Gas oil	3	UN1202	III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
D	Gasohol (*gasoline mixed with ethyl alcohol, max. 20% alcohol*)	3	NA1203	II	FLAMMABLE LIQUID		150	202	242	5 L	60 L	E	
	Gasoline	3	UN1203	II	FLAMMABLE LIQUID	B33, T8	150	202	242	5 L	60 L	E	
	Gasoline, casinghead, see Natural gasoline												
	Gelatine, blasting, see Explosive, blasting, type A												
	Gelatine dynamites, see Explosive, blasting, type A												
	Germane	2.3	UN2192		POISON GAS, FLAMMABLE GAS.	1	None	192	245	Forbidden	Forbidden	D	40
	Glycerol-1,3-dinitrate	Forbidden											
	Glycerol gluconate trinitrate	Forbidden											
	Glycerol lactate trinitrate	Forbidden											
	Glycerol alpha-monochlorohydrin	6.1	UN2689	III	KEEP AWAY FROM FOOD.	T2	153	203	241	60 L	220 L	A	
	Glyceryl trinitrate, see Nitroglycerin, *etc.*												
	Glycidaldehyde	3	UN2622	II	FLAMMABLE LIQUID, POISON.	T8	150	202	243	1 L	60 L	A	40
D	Grenades, empty primed	1.4S	NA0349	II	None	None	None	62	None	25 kg	100 kg	A	9E
	Grenades, *hand or rifle, with bursting charge*	1.1D	UN0284	II	EXPLOSIVE 1.1D		63(b)	62	None	Forbidden	Forbidden	B	
	Grenades, *hand or rifle, with bursting charge*	1.2D	UN0285	II	EXPLOSIVE 1.2D		63(b)	62	None	Forbidden	Forbidden	B	
	Grenades, *hand or rifle, with bursting charge*	1.1F	UN0292	II	EXPLOSIVE 1.1F		63(b)	62	None	Forbidden	Forbidden	E	
	Grenades, *hand or rifle, with bursting charge*	1.2F	UN0293	II	EXPLOSIVE 1.2F		63(b)	62	None	Forbidden	Forbidden	E	
	Grenades, illuminating, see Ammunition, illuminating, *etc.*												
	Grenades practice *Hand or rifle*	1.4G	UN0452	II	EXPLOSIVE 1.4G		63(b)	62	None	Forbidden	75 kg	B	
	Grenades, practice, *hand or rifle*	1.4S	UN0110	II	EXPLOSIVE 1.4S		63(b)	62	None	25 kg	100 kg	A	9E
	Grenades, practice, *hand or rifle*	1.3G	UN0318	II	EXPLOSIVE 1.3G		63(b)	62	None	Forbidden	Forbidden	B	
	Grenades, practice, *hand or rifle*	1.2G	UN0372	II	EXPLOSIVE 1.2G		63(b)	62	None	Forbidden	Forbidden	B	
	Grenades, smoke, see Ammunition, smoke, *etc.*												
	Guanidine nitrate	5.1	UN1467	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	A	73
	Guanyl nitrosaminoguanylidene hydrazine (dry)	Forbidden											
	Guanyl nitrosaminoguanylidene hydrazine, wetted *with not less than 30 per cent water, by mass.*	1.1A	UN0113	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E
	Guanyl nitrosaminoguanyltetrazene (dry)	Forbidden											
	Guanyl nitrosaminoguanyltetrazene, wetted *or* Tetrazene, wetted *with not less than 30 per cent water or mixture of alcohol and water, by mass.*	1.1A	UN0114	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E
	Gunpowder, compressed *or* Gunpowder in pellets, *see* Black powder (*UN 0028*).												
	Gunpowder, *granular or as a meal, see* Black powder (*UN 0027*).												

	Hafnium powder, dry	4.2	UN2545	I	SPONTANEOUSLY COMBUSTIBLE.		None	211	242	Forbidden	Forbidden	D	
				II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N34	None	212	241	15 kg	50 kg	D	
				III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	25 kg	100 kg	D	
	Hafnium powder, wetted *with not less than 25 per cent water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced, particle size less than 840 microns.*	4.1	UN1326	II	FLAMMABLE SOLID	A6, A19, A20, N34.	None	212	241	15 kg	50 kg	E	
	Halogenated irritating liquids, n.o.s.	6.1	UN1610	I	POISON	T42	None	201	243	Forbidden	Forbidden	D	40
				II	POISON	T14	None	202	243	5 L	60 L	D	40
				III	KEEP AWAY FROM FOOD.	T14	153	202	241	60 L	220 L	D	40
	Hand signal device, see Signal devices, hand												
	Hazardous substances, liquid or solid, n.o.s., see Environmentally hazardous substances, *etc.*.												
D	Hazardous waste, liquid, n.o.s.	9	NA3082	III	CLASS 9		155	203	241	No limit	No limit	A	
D	Hazardous waste, solid, n.o.s.	9	NA3077	III	CLASS 9	B54	155	213	240	No limit	No limit	A	
	Helium, compressed	2.2	UN1046		NONFLAMMABLE GAS.		306	302	302, 314	75 kg	150 kg	A	65
	Helium-oxygen mixture, see Rare gases and oxygen mixtures.												
	Helium, refrigerated liquid (*cryogenic liquid*)	2.2	UN1963		NONFLAMMABLE GAS.		320	316	318	50 kg	500 kg	B	
	n-Heptaldehyde	3	UN3056	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Heptanes	3	UN1206	II	FLAMMABLE LIQUID	T2	150	202	242	5 L	60 L	B	
	n-Heptene	3	UN2278	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Hexachloroacetone	6.1	UN2661	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	B	12, 40
	Hexachlorobenzene	6.1	UN2729	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	A	
	Hexachlorobutadiene	6.1	UN2279	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	Hexachlorocyclopentadiene	6.1	UN2646	I	POISON	2, B9, B14, B32, B74, B77, T38, T43, T44.	None	227	244	Forbidden	Forbidden	D	40
	Hexachlorophene	6.1	UN2875	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Hexadecyltrichlorosilane	8	UN1781	II	CORROSIVE	A7, B2, B6, N34, T8.	None	202	242	Forbidden	30 L	C	40
	Hexadienes	3	UN2458	II	FLAMMABLE LIQUID	T7	None	202	242	5 L	60 L	B	
	Hexaethyl tetraphosphate and compressed gas mixtures.	2.3	UN1612		POISON GAS	3	None	334	None	Forbidden	Forbidden	D	40
	Hexaethyl tetraphosphate *liquid*	6.1	UN1611	I	POISON	A4	None	201	243	1 L	30 L	E	40
				II	POISON	N76	None	202	243	5 L	60 L	E	40
				III	KEEP AWAY FROM FOOD.	N77	None	203	241	60 L	220 L	E	40
	Hexaethyl tetraphosphate, *solid*	6.1	UN1611	I	POISON		None	211	242	Forbidden	15 kg	E	95
				II	POISON	N76	None	212	242	25 kg	100 kg	E	95
				III	KEEP AWAY FROM FOOD.	N77	153	213	240	100 kg	200 kg	E	34
	Hexafluoroacetone	2.3	UN2420		POISON GAS	2, B9, B14	None	304	314, 315	Forbidden	25 kg	D	40
	Hexafluoroacetone hydrate	6.1	UN2552	II	POISON	T14	None	202	243	5 L	60 L	B	40
	Hexafluoroethane, *R116*	2.2	UN2193		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
	Hexafluorophosphoric acid	8	UN1782	II	CORROSIVE	A6, A7, B2, N3, N34, T9, T27.	None	202	242	1 L	30 L	A	
D	Hexafluoropropylene oxide	2.2	NA1956		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
	Hexafluoropropylene, *R1216*	2.2	UN1858		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
	Hexaldehyde	3	UN1207	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Hexamethylene diisocyanate	6.1	UN2281	II	POISON	T14	None	202	243	5 L	60 L	B	13, 40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Hexamethylene triperoxide diamine (dry)	Forbidden											
	Hexamethylenediamine, solid	8	UN2280	III	CORROSIVE		154	213	240	25 kg	100 kg	A	12, 48
	Hexamethylenediamine solution	8	UN1783	II	CORROSIVE	T8	None	202	243	1 L	30 L	A	
	Hexamethyleneimine	3	UN2493	II	FLAMMABLE LIQUID, CORROSIVE.	T8	None	202	243	1 L	5 L	B	40
	Hexanethyol benzene hexanitrate	Forbidden											
	Hexamine	4.1	UN1328	III	FLAMMABLE SOLID	A1	151	213	240	25 kg	100 kg	A	
	Hexanes	3	UN1208	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	
	2,2',4,4',6,6'-Hexanitro-3,3'-dihydroxyazobenzene (dry).	Forbidden											
	Hexanitroazoxy benzene	Forbidden											
	N,N'-(hexanitrodiphenyl) ethylene dinitramine (dry)	Forbidden											
	Hexanitrodiphenyl urea	Forbidden											
	2,2',3',4,4',6-Hexanitrodiphenylamine	Forbidden											
	Hexanitrodiphenylamine (Dipicrylamine; Hexyl)	1.1D	UN0079	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	2,3',4,4',6,6'-Hexanitrodiphenylether	Forbidden											
	Hexanitroethane	Forbidden											
	Hexanitrooxanilide	Forbidden											
	Hexanitrostilbene	1.1D	UN0392	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Hexanoic acid, see Corrosive liquids, n.o.s.												
	Hexanols	3	UN2282	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Hexatonal, cast	1.1D	UN0393	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	1-Hexene	3	UN2370	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	
	Hexogen and cyclotetramethylenetetranitramine mixtures, wetted *or* desensitized *see* RDX and HMX mixtures, wetted *or* desensitized *etc.*.												
	Hexogen and HMX mixtures, wetted *or* desensitized *see* RDX and HMX mixtures, wetted *or* desensitized *etc.*.												
	Hexogen and octogen mixtures, wetted *or* desensitized *see* RDX and HMX mixtures, wetted *or* desensitized *etc.*.												
	Hexogen, *see* Cyclotrimethylenetrinitramine, *etc.*												
	Hexolite, *dry or wetted with less than 15 per cent water, by mass.*	1.1D	UN0118	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Hexyl, *see* Hexanitrodiphenylamine												
	Hexyltrichlorosilane	8	UN1784	II	CORROSIVE	A7, B2, B6, N34, T8, T26.	None	202	242	Forbidden	30 L	C	40
	High explosives, see individual explosives' entries												
	HMX, *see* Cyclotetramethylene-tetranitramine, *etc.*												
	Hydrazine, anhydrous *or* Hydrazine aqueous solutions *with more than 64 per cent hydrazine, by mass.*	3	UN2029	I	FLAMMABLE LIQUID, POISON, CORROSIVE.	A3, A6, A7, A10, B16, B53, T25.	None	201	243	Forbidden	2.5 L	D	21, 40, 42, 100
	Hydrazine azide	Forbidden											
	Hydrazine chlorate	Forbidden											
	Hydrazine dicarbonic acid diazide	Forbidden											
	Hydrazine hydrate *or* Hydrazine aqueous solutions, *with not more than 64 per cent hydrazine, by mass.*	8	UN2030	II	CORROSIVE, POISON.	B16, B53, T15	None	202	243	Forbidden	30 L	D	40, 42, 82
	Hydrazine perchlorate	Forbidden											
	Hydrazine selenate	Forbidden											
	Hydrides, metal, n.o.s.	4.3	UN1409	I	DANGEROUS WHEN WET	A19, N34, N40	None	211	242	Forbidden	15 kg	D	

	Hydriodic acid, anhydrous, see Hydrogen iodide, anhydrous.													
	Hydriodic acid, solution	8	UN1787	II	CORROSIVE	A3, A6, B2, N41, T9, T27.	154	202	242	1 L	30 L	C	8	
	Hydrobromic acid, anhydrous, see Hydrogen bromide, anhydrous.													
	Hydrobromic acid solution *more than 49% hydrobromic acid.*	8	UN1788	II	CORROSIVE	B2, B15, N41, T9, T27.	154	202	242	Forbidden	Forbidden	C	8	
	Hydrobromic acid solution, *not more than 49% hydrobromic acid.*	8	UN1788	II	CORROSIVE	A3, A6, B2, B15, N41, T9, T27.	154	202	242	1 L	30 L	C	8	
	Hydrocarbon gases, compressed, n.o.s. *or* Hydrocarbon gases mixtures, compressed, n.o.s..	2.1	UN1964		FLAMMABLE GAS		306	302	314, 315	Forbidden	150 kg	E	40	
	Hydrocarbon gases, liquefied, n.o.s. *or* Hydrocarbon gases mixtures, liquefied, n.o.s..	2.1	UN1965		FLAMMABLE GAS		306	304	314; 315	Forbidden	150 kg	E	40	
	Hydrochloric acid, anhydrous, see Hydrogen chloride, anhydrous.													
	Hydrochloric acid, solution	8	UN1789	II	CORROSIVE	A3, A6, B2, B15, N41, T9, T27.	154	202	242	1 L	30 L	C	8	
	Hydrocyanic acid, anhydrous, see Hydrogen cyanide *etc.*.													
D	Hydrocyanic acid, aqueous solutions *less than 5% HCN.*	6.1	NA1613	II	POISON	B12, T18, T26	None	195	243	Forbidden	5 L	D	40	
	Hydrocyanic acid, aqueous solutions *not more than 20% hydrocyanic acid.*	6.1	UN1613	I	POISON	2, B12, B61, B65, B77, B82.	None	195	244	Forbidden	Forbidden	D	40	
	Hydrocyanic acid, liquefied, see Hydrogen cyanide, *etc.*.													
	Hydrocyanic acid (prussic), unstabilized	Forbidden												
	Hydrofluoric acid and Sulfuric acid mixtures	8	UN1786	I	CORROSIVE, POISON.	A6, A7, B15, B23, N5, N34, T18, T27.	None	201	243	Forbidden	2.5 L	D	40, 95	
	Hydrofluoric acid, anhydrous, see Hydrogen fluoride, anhydrous.													
	Hydrofluoric acid, solution, *more than 60 per cent strength.*	8	UN1790	I	CORROSIVE, POISON.	A6, A7, B4, B12, B15, B23, N5, N34, T18, T27.	None	201	243	0.5 L	2.5 L	D	12, 40, 48, 95	
	Hydrofluoric acid, solution, *not more than 60 per cent strength.*	8	UN1790	II	CORROSIVE, POISON.	A6, A7, B12, B15, N5, N34, T18, T27.	None	202	243	1 L	30 L	D	12, 40, 48, 95	
	Hydrofluoroboric acid, see Fluoboric acid													
	Hydrofluorosilicic acid, see Fluorosilicic acid													
	Hydrogen and Methane mixtures, compressed	2.1	UN2034		FLAMMABLE GAS		306	302	302, 314, 315	Forbidden	150 kg	E	40	
	Hydrogen bromide, anhydrous	2.3	UN1048		POISON GAS, CORROSIVE.	3, B14	None	304	314, 315	Forbidden	25 kg	D	40	
	Hydrogen chloride, anhydrous	2.3	UN1050		POISON GAS, CORROSIVE.	3	None	304	None	Forbidden	Forbidden	D	40	
	Hydrogen chloride, refrigerated liquid	2.3	UN2186		POISON GAS, CORROSIVE.	3, B6, B43	None	None	314, 315	Forbidden	Forbidden	B	40	
	Hydrogen, compressed	2.1	UN1049		FLAMMABLE GAS		306	302	302, 314	Forbidden	150 kg	E	40, 57	
	Hydrogen cyanide, anhydrous, stabilized	6.1	UN1051	I	POISON, FLAMMABLE LIQUID.	1, B12, B61, B65, B77, B82.	None	195	244	Forbidden	Forbidden	D	40	
	Hydrogen cyanide, anhydrous, stabilized, *absorbed in a porous inert material.*	6.1	UN1614	I	POISON	5	None	195	None	Forbidden	Forbidden	D	25, 40	
	Hydrogen fluoride, anhydrous	8	UN1052	I	CORROSIVE, POISON.	3, B7, B12, B46, B71, B77, T24, T27.	None	163	243	Forbidden	Forbidden	D	40, 95	
	Hydrogen iodide, anhydrous	2.2	UN2197		NONFLAMMABLE GAS, CORROSIVE.		306	304	314, 315	Forbidden	Forbidden	D	40	
	Hydrogen iodide solution, see Hydriodic acid, solution.													

§ 172.101 Hazardous Materials Table—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Hydrogen peroxide and peroxyacetic acid mixtures, *with acids, water and not more than 5 per cent peroxyacetic acid, stabilized.*	5.1	UN3149	II	OXIDIZER, CORROSIVE.	A2, A3, A6, B12, B53, T14.	None	202	243	1 L	5 L	D	25, 66, 75, 106
	Hydrogen peroxide, aqueous solutions *with more than 40 per cent but not more than 60 per cent hydrogen peroxide (stabilized as necessary).*	5.1	UN2014	II	OXIDIZER, CORROSIVE.	12, A3, A6, B12, B53, B80, B81, B85, T14, T37.	None	202	243	Forbidden	Forbidden	D	25, 66, 75, 106
	Hydrogen peroxide, aqueous solutions *with not less than 8 per cent but less than 20 per cent hydrogen peroxide (stabilized as necessary).*	5.1	UN2984	III	OXIDIZER	17, A1, T8, T37	152	203	241	2.5 L	30 L	B	25, 75, 106
	Hydrogen peroxide, aqueous solutions *with not less than 20 per cent but not more than 40 per cent hydrogen peroxide (stabilized as necessary).*	5.1	UN2014	II	OXIDIZER, CORROSIVE.	A2, A3, A6, B12, B53, T14, T37.	None	202	243	1 L	5 L	D	25, 66, 75, 106
	Hydrogen peroxide, stabilized *or* Hydrogen peroxide aqueous solutions, stabilized *with more than 60 per cent hydrogen peroxide.*	5.1	UN2015	I	OXIDIZER, CORROSIVE.	12, A3, A6, B12, B53, B80, B81, B85, T15, T37.	None	201	243	Forbidden	Forbidden	D	25, 66, 75, 106
	Hydrogen, refrigerated liquid (*cryogenic liquid*)	2.1	UN1966		FLAMMABLE GAS		None	316	318, 319	Forbidden	Forbidden	D	40
	Hydrogen selenide, anhydrous	2.3	UN2202		POISON GAS, FLAMMABLE GAS.	1	None	192	245	Forbidden	Forbidden	D	40
	Hydrogen sulfate, see Sulfuric acid												
	Hydrogen sulfide, liquefied	2.3	UN1053		POISON GAS, FLAMMABLE GAS.	2, B9, B14	None	304	314, 315	Forbidden	Forbidden	D	40
	Hydroquinone, liquid	6.1	UN2662	III	KEEP AWAY FROM FOOD.	T8	153	213	240	100 kg	200 kg	A	
	Hydroquinone, solid	6.1	UN2662	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	AA	
	Hydrosilicofluoric acid, see Fluorosilicic acid												
	3-(2-Hydroxyethoxy)-4-pyrrolidin-1-ylbenzenediazonium zinc chloride.	4.1	UN3035	II	FLAMMABLE SOLID		None	224	240	Forbidden	Forbidden	D	2
	Hydroxyl amine iodide	Forbidden											
AW	Hydroxylamine sulfate	8	UN2865	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Hypochlorite solutions *with more than 5 per cent but less than 16 per cent available chlorine.*	8	UN1791	III	CORROSIVE	N34, T7	154	203	241	5 L	60 L	B	26
	Hypochlorite solutions *with 16 per cent or more available chlorine.*	8	UN1791	II	CORROSIVE	A7, B2, B15, N34, T7.	154	202	242	1 L	30 L	B	26
	Hyponitrous acid	Forbidden											
	Igniter fuse, metal clad, see Fuse, igniter, tubular, metal clad.												
	Igniters	1.1G	UN0121	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	
	Igniters	1.2G	UN0314	II	EXPLOSIVE 1.2G		None	62	None	Forbidden	Forbidden	B	
	Igniters	1.3G	UN0315	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	Forbidden	A	
	Igniters	1.4G	UN0325	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E
	Igniters	1.4S	UN0454	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	3,3'-Iminodipropylamine	8	UN2269	III	CORROSIVE	T8	154	203	241	5 L	60 L	A	
	Infectious substances, affecting animals *only*	6.2	UN2900		INFECTIOUS SUBSTANCE.		196	196	None	50 mL or 50 g.	4 L or 4 kg.	B	
	Infectious substances, affecting humans	6.2	UN2814		INFECTIOUS SUBSTANCE.		196	196	None	50 mL or 50 g.	4 L or 4 kg.	B	
	Inflammable, see Flammable												
	Initiating explosives (dry)	Forbidden											
	Ink, *printer's, flammable*	3	UN1210	II	FLAMMABLE LIQUID	T7, T30	150	173	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	173	242	60 L	220 L	A	

	Inositol hexanitrate (dry)	Forbidden												
	Insecticide gases *flammable* n.o.s.	2.1	UN1968		FLAMMABLE GAS		306	304	314, 315	75 kg	150 kg	D	40	
	Insecticide gases, n.o.s.	2.2	UN1968		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	105	
	Insecticide gases, toxic, n.o.s.	2.3	UN1967		POISON GAS	3	None	193, 334	245	Forbidden	Forbidden	D	40	
	Inulin trinitrate (dry)	Forbidden												
	Iodine azide (dry)	Forbidden												
	Iodine monochloride	8	UN1792	II	CORROSIVE	B6, N41, T8, T26.	None	202	242	Forbidden	50 kg	D	40, 66, 74, 89, 90	
	Iodine pentafluoride	5.1	UN2495	I	OXIDIZER, POISON		None	205	243	Forbidden	2.5 L	D	25, 40, 66, 90	
	2-Iodobutane	3	UN2390	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B		
	Iodomethylpropanes	3	UN2391	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B		
	Iodopropanes	3	UN2392	III	FLAMMABLE LIQUID	B1, T8	150	203	241	60 L	220 L	A		
	Iodoxy compounds (dry)	Forbidden												
	Iridium nitratopentamine iridium nitrate	Forbidden												
	Iron chloride, see Ferric chloride													
	Iron oxide, spent, *or* Iron sponge, spent *obtained from coal gas purification.*	4.2	UN1376	III	SPONTANEOUSLY COMBUSTIBLE.	B18	None	213	240	Forbidden	Forbidden	E		
	Iron pentacarbonyl	6.1	UN1994	I	POISON, FLAMMABLE LIQUID.	1, B9, B14, B30, B72, B77, T38, T43, T44.	None	192	244	Forbidden	Forbidden	D	40	
	Iron sesquichloride, see Ferric chloride													
	Irritating material, see Tear gas substances, *etc.*													
	Isobutane *or* Isobutane mixtures	2.1	UN1969		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	E	40	
	Isobutanol *or* Isobutyl alcohol	3	UN1212	III	FLAMMABLE LIQUID	B1, T1	150	203	241	60 L	220 L	A		
	Isobutyl acetate	3	UN1213	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
	Isobutyl acrylate	3	UN2527	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	Isobutyl alcohol, *see* Isobutanol													
	Isobutyl aldehyde, *see* Isobutyraldehyde													
D	Isobutyl chloroformate	6.1	NA2742	I	POISON, FLAMMABLE LIQUID, CORROSIVE.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	1 L	30 L	A	12, 13, 22, 25, 40, 48, 100	
	Isobutyl formate	3	UN2393	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B		
	Isobutyl isobutyrate	3	UN2528	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
+	Isobutyl isocyanate	3	UN2486	II	FLAMMABLE LIQUID, POISON.	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	1 L	60 L	D	40	
	Isobutyl methacrylate	3	UN2283	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	Isobutyl propionate	3	UN2394	III	FLAMMABLE LIQUID	T1	150	203	242	60 L	220 L	B		
	Isobutylamine	3	UN1214	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40	
	Isobutylene *see also* Petroleum gases, liquefied	2.1	UN1055		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	E	40	
	Isobutyraldehyde *or* Isobutyl aldehyde	3	UN2045	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	40	
	Isobutyric acid	3	UN2529	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	Isobutyric anhydride	3	UN2530	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A		
	Isobutyronitrile	3	UN2284	II	FLAMMABLE LIQUID, POISON.	T17	None	202	243	1 L	60 L	E	40	
	Isobutyryl chloride	3	UN2395	II	FLAMMABLE LIQUID, CORROSIVE.	T9, T26	None	202	243	1 L	5 L	C	40	
	Isocyanates, liquid *or* solid, n.o.s. *or* Isocyanate solutions, n.o.s. *boiling point not less than 300 degrees C.*	6.1	UN2207	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	A	48	
	Isocyanates, n.o.s. *or* Isocyanate solutions, n.o.s., *flash point more than 61 degrees C and boiling point less than 300 degrees C.*	6.1	UN2206	II	POISON	T15	None	202	243	5 L	60 L	D	25, 40, 48	
	Isocyanates, n.o.s. *or* Isocyanate solutions, n.o.s., *flash point not less than 23 degrees C but not more than 61 degrees C and boiling point less than 300 degrees C.*	6.1	UN3080	II	POISON, FLAMMABLE LIQUID.	T15	None	202	243	5 L	60 L	D	25, 40, 48	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(6) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Nonbulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Isocyanates, n.o.s. *or* Isocyanate solutions, n.o.s. (flashpoint less than 23 degrees C).	3	UN2478	II	FLAMMABLE LIQUID, POISON.	5, A3, A7	None	202	243	1 L	60 L	D	40
	Isocyanatobenzotrifluorides	6.1	UN2285	II	POISON	5, T14	None	202	243	5 L	60 L	B	25, 40, 48
	Isoheptenes	3	UN2287	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	
	Isohexenes	3	UN2288	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	E	
	Isooctane, see Octanes												
	Isooctenes	3	UN1216	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Isopentane, *see* n-Pentane												
	Isopentanoic acid, see Corrosive liquids, n.o.s.												
	Isopentenes	3	UN2371	I	FLAMMABLE LIQUID	T20	150	201	243	1 L	30 L	E	
	Isophorone diisocyanate	6.1	UN2290	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	B	40
AW	Isophoronediamine	8	UN2289	III	CORROSIVE	T8	154	203	241	5 L	60 L	A	8
	Isoprene, inhibited	3	UN1218	I	FLAMMABLE LIQUID	T20	150	201	243	1 L	30 L	E	
	Isopropanol *or* Isopropyl alcohol	3	UN1219	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Isopropenyl acetate	3	UN2403	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Isopropenylbenzene	3	UN2303	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Isopropyl acetate	3	UN1220	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Isopropyl acid phosphate	8	UN1793	III	CORROSIVE	T7	154	213	240	25 kg	100 kg	A	
	Isopropyl alcohol, *see* Isopropanol												
	Isopropyl butyrate	3	UN2405	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Isopropyl chloroacetate	3	UN2947	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
+	Isopropyl chloroformate	3	UN2407	I	FLAMMABLE LIQUID, CORROSIVE, POISON.	2, B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	Forbidden	Forbidden	B	40
	Isopropyl-2-chloropropionate	3	UN2934	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Isopropyl isobutyrate	3	UN2406	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
+	Isopropyl isocyanate	3	UN2483	I	FLAMMABLE LIQUID, POISON.	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	30 L	D	40
	Isopropyl mercaptan, see Propanethiols												
	Isopropyl nitrate	3	UN1222	II	FLAMMABLE LIQUID	T25	150	202	None	5 L	60 L	D	
	Isopropyl phosphoric acid, see Isopropyl acid phosphate.												
	Isopropyl propionate	3	UN2409	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Isopropylamine	3	UN1221	I	FLAMMABLE LIQUID	T20	None	201	243	1 L	30 L	E	
	Isopropylbenzene	3	UN1918	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Isopropylcumyl hydroperoxide, more than 72 per cent in solution.	Forbidden											
	Isosorbide dinitrate mixture *with not less than 60 per cent lactose, mannose, starch or calcium hydrogen phosphate.*	4.1	UN2907	II	FLAMMABLE SOLID		None	212	None	15 kg	50 kg	E	
	Isothiocyanic acid	Forbidden											
	Jet fuel, see Fuel aviation, turbine engine												
	Jet perforating guns, charged *oil well, without detonator.*	1.1D	UN0124	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	
D	Jet perforating guns, charged *oil well, without detonator.*	1.4D	NA0124	II	EXPLOSIVE 1.4D	114	None	62	None	Forbidden	Forbidden	A	24E
	Jet perforators, see Charges, shaped, commercial *etc.*.												
	Jet tappers, without detonator, see Charges, shaped commercial, *etc.*.												

	Jet thrust igniters, for rocket motors or Jato, see Igniters.														
	Jet thrust unit (Jato), see Rocket motors														
	Kerosene	3	UN1223	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A			
	Ketones, liquid, n.o.s.	3	UN1224	I	FLAMMABLE LIQUID	T8, T31	None	201	243	1 L	30 L	E			
				II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B			
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A			
	Krypton, compressed	2.2	UN1056		NONFLAMMABLE GAS.		306	302	None	75 kg	150 kg	A			
	Krypton, refrigerated liquid (*cryogenic liquid*)	2.2	UN1970		NONFLAMMABLE GAS.		320	None	None	50 kg	500 kg	B			
	Lacquer base or lacquer chips, nitrocellulose, dry, see Nitrocellulose, *etc. (UN 2557).*														
	Lacquer base or lacquer chips, plastic, wet with alcohol or solvent, see Nitrocellulose *(UN 2059, UN 2060, UN 2555, UN2556) or* Paint *etc. (UN1263).*														
	Lead acetate	6.1	UN1616	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A			
	Lead arsenates	6.1	UN1617	II	POISON		None	212	242	25 kg	100 kg	A			
	Lead arsenites	6.1	UN1618	II	POISON		None	212	242	25 kg	100 kg	A			
	Lead azide (dry)	Forbidden													
	Lead azide, wetted *with not less than 20 per cent water or mixture of alcohol and water, by mass.*	1.1A	UN0129	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E		
	Lead compounds, soluble, n.o.s.	6.1	UN2291	II	POISON		153	213	240	100 kg	200 kg	A			
	Lead cyanide	6.1	UN1620	II	POISON		None	212	242	25 kg	100 kg	A	26		
	Lead dioxide	5.1	UN1872	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	A	34		
	Lead dross, see Lead sulphate, *with more than 3% free acid.*														
D	Lead mononitroresorcinate	1.1A	NA0473	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E		
	Lead nitrate	5.1	UN1469	II	OXIDIZER, POISON		None	212	242	5 kg	25 kg	A			
	Lead nitroresorcinate (dry)	Forbidden													
	Lead perchlorate, solid *or* solution	5.1	UN1470	II	OXIDIZER, POISON	T8	None	212	242	5 kg	25 kg	A	56, 58, 106		
	Lead peroxide, see Lead dioxide														
	Lead phosphite, dibasic	4.1	UN2989	II	FLAMMABLE SOLID		None	212	240	5 kg	25 kg	B	34		
				III	FLAMMABLE SOLID		151	213	240	15 kg	50 kg	B	34		
	Lead picrate (dry)	Forbidden													
	Lead styphnate (dry)	Forbidden													
	Lead styphnate, wetted *or* Lead trinitroresorcinate, wetted *with not less than 20 per cent water or mixture of alcohol and water, by mass.*	1.1A	UN0130	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E		
	Lead sulfate *with more than 3 per cent free acid*	8	UN1794	II	CORROSIVE		154	212	240	15 kg	50 kg	A			
	Lead trinitroresorcinate, *see* Lead styphnate, *etc.*														
	Life-saving appliances, not self inflating *containing dangerous goods as equipment.*	9	UN3072		None		None	219	None	No limit	No limit	A	120		
	Life-saving appliances, self inflating	9	UN2990		None		None	219	None	No limit	No limit	A	120		
	Lighter replacement cartridges containing liquefied petroleum gases (and similar devices, each not exceeding 65 grams), see Lighters for cigars, cigarettes, *etc. with flammable gas.*														
D	Lighters for cigars, cigarettes, *etc., with lighter fluids.*	3	NA1226	II	FLAMMABLE LIQUID	N10	None	21	None	Forbidden	Forbidden	B			
	Lighters, fuse	1.4S	UN0131	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E		
	Lighters *or* Lighter refills (cigarettes) containing flammable gas.	2.1	UN1057		FLAMMABLE GAS	N10	None	21, 308	None	1 kg	15 kg	B	40		
	Lime, unslaked, see Calcium oxide														
	Liquefied gases, *non-flammable charged with nitrogen, carbon dioxide or air.*	2.2	UN1058		NONFLAMMABLE GAS.		306	304	None	75 kg	150 kg	A			
	Liquefied hydrocarbon gas, see Hydrocarbon gases, liquefied, n.o.s., *etc.*														
	Liquefied natural gas, see Methane, *etc. (UN 1972).*														
	Liquefied petroleum gas *see* Petroleum gases, liquefied.														
	Lithium	4.3	UN1415	II	DANGEROUS WHEN WET.	A7, A19, N45	None	212	244	Forbidden	50 kg	E			

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(6) Packaging authorizations (§ 173.***)			(8) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Lithium acetylide ethylenediamine complex, see Substances which in contact with water emit flammable gases.												
	Lithium alkyls	4.2	UN2445	I	SPONTANEOUSLY COMBUSTIBLE.	B11, T28, T40	None	181	244	Forbidden	Forbidden	D	
	Lithium aluminum hydride	4.3	UN1410	I	DANGEROUS WHEN WET.	A19, N40	None	211	242	Forbidden	15 kg	E	
	Lithium aluminum hydride, ethereal	4.3	UN1411	I	DANGEROUS WHEN WET, FLAMMABLE LIQUID.	A2, A3, A11, N34.	None	201	244	Forbidden	1 L	D	40
	Lithium batteries, contained in equipment	9	UN3091	II	CLASS 9	18, A12	None	185	None	See A12	See A12	A	
	Lithium battery, liquid cathode	9	UN3090	II	CLASS 9	A12	None	185	None	See A12	0.5 kg	A	
	Lithium battery, solid cathode	9	UN3090	II	CLASS 9	A12	None	185	None	See A12	0.5 kg	A	
	Lithium borohydride	4.3	UN1413	I	DANGEROUS WHEN WET.	A19, N40	None	211	242	Forbidden	15 kg	E	
	Lithium ferrosilicon	4.3	UN2830	II	DANGEROUS WHEN WET.	A19	None	212	241	15 kg	50 kg	E	40, 85, 103
	Lithium hydride	4.3	UN1414	I	DANGEROUS WHEN WET.	A19, N40	None	211	242	Forbidden	15 kg	E	
	Lithium hydride, fused solid	4.3	UN2805	II	DANGEROUS WHEN WET.	A8, A19, A20	None	212	241	15 kg	50 kg	E	
	Lithium hydroxide, monohydrate *or* Lithium hydroxide, solid.	8	UN2680	II	CORROSIVE		154	212	240	15 kg	50 kg	A	
	Lithium hydroxide, solution	8	UN2679	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	96
	Lithium hypochlorite, dry *or* Lithium hypochlorite mixtures, dry.	5.1	UN1471	II	OXIDIZER	A9, N34	152	212	240	5 kg	25 kg	A	13, 46, 56, 58, 69, 106, 116
	Lithium in cartridges, see Lithium												
	Lithium nitrate	5.1	UN2722	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	A	
	Lithium nitride	4.3	UN2806	I	DANGEROUS WHEN WET.	A19, N40	None	211	242	Forbidden	15 kg	E	
	Lithium peroxide	5.1	UN1472	II	OXIDIZER	A9, N34	152	212	None	5 kg	25 kg	A	13, 75, 106
	Lithium silicon	4.3	UN1417	II	DANGEROUS WHEN WET.	A19, A20	None	212	241	15 kg	50 kg	A	85, 103
	LNG, see Methane *etc. (UN 1972)*												
	London Purple	6.1	UN1621	II	POISON		None	212	242	25 kg	100 kg	A	
	LPG, see Petroleum gases, liquefied												
	Lye, see Sodium hydroxide, solutions												
	Magnesium alkyls	4.2	UN3053	I	SPONTANEOUSLY COMBUSTIBLE.	B11, T28, T28, T40.	None	181	244	Forbidden	Forbidden	D	18
	Magnesium aluminum phosphide	4.3	UN1419	I	DANGEROUS WHEN WET, POISON.	A19, N34, N40	None	211	242	Forbidden	15 kg	E	40, 85
+	Magnesium arsenate	6.1	UN1622	II	POISON		None	212	242	25 kg	100 kg	A	
	Magnesium bisulfite solution, *see* Bisulfites, inorganic aqueous solutions, n.o.s.												
	Magnesium bromate	5.1	UN1473	II	OXIDIZER	A1	152	212	242	5 kg	25 kg	A	56, 58, 106
	Magnesium chlorate	5.1	UN2723	II	OXIDIZER		152	212	242	5 kg	25 kg	A	56, 58, 106
	Magnesium diamide	4.2	UN2004	II	SPONTANEOUSLY COMBUSTIBLE.	A8, A19, A20	None	212	241	15 kg	50 kg	C	

	Magnesium diphenyl	4.2	UN2005	I	SPONTANEOUSLY COMBUSTIBLE.		None	187	244	Forbidden	Forbidden	C	
	Magnesium dross, wet or hot	Forbidden											
	Magnesium fluorosilicate	6.1	UN2853	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	26
	Magnesium granules, coated *particle size not less than 149 microns.*	4.3	UN2950	III	DANGEROUS WHEN WET.	A1, A19	None	213	240	25 kg	100 kg	A	
	Magnesium hydride	4.3	UN2010	I	DANGEROUS WHEN WET.	A19, N40	None	211	242	Forbidden	15 kg	E	
	Magnesium *or* Magnesium alloys *with more than 50 per cent magnesium in pellets, turnings or ribbons.*	4.1	UN1869	III	FLAMMABLE SOLID	A1	151	213	240	25 kg	100 kg	A	39
	Magnesium nitrate	5.1	UN1474	III	OXIDIZER	A1, T2	152	213	240	25 kg	100 kg	A	
	Magnesium perchlorate	5.1	UN1475	II	OXIDIZER	T8	152	212	242	5 kg	25 kg	A	56, 58, 106
	Magnesium peroxide	5.1	UN1476	II	OXIDIZER		152	212	242	5 kg	25 kg	A	13, 75, 106
	Magnesium phosphide	4.3	UN2011	I	DANGEROUS WHEN WET, POISON.	A19, N40	None	211	None	Forbidden	15 kg	E	40, 85
	Magnesium, powder *or* Magnesium alloys, powder	4.3	UN1418	II	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.	A19, B56	None	212	241	15 kg	50 kg	A	39
	Magnesium scrap, see Magnesium, *etc. (UN 1869)*												
	Magnesium silicide	4.3	UN2624	II	DANGEROUS WHEN WET.	A19, A20	None	212	241	15 kg	50 kg	B	85, 103
	Magnetized material, see section 173.21												
D	Maleic acid	8	NA2215	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Maleic anhydride	8	UN2215	III	CORROSIVE	T7	154	213	240	25 kg	100 kg	A	
	Malononitrile	6.1	UN2647	II	POISON		None	212	242	25 kg	100 kg	A	12
	Maneb *or* Maneb preparations *with not less than 60 per cent maneb.*	4.2	UN2210	III	SPONTANEOUSLY COMBUSTIBLE, DANGEROUS WHEN WET.	A1, A19	None	213	242	25 kg	100 kg	A	34
	Maneb stabilized *or* Maneb preparations, stabilized *against self-heating.*	4.3	UN2968	III	DANGEROUS WHEN WET.	A1, A19	None	213	242	25 kg	100 kg	B	34
	Manganese nitrate	5.1	UN2724	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	A	
	Manganese resinate	4.1	UN1330	III	FLAMMABLE SOLID	A1	151	213	240	25 kg	100 kg	A	
	Mannitan tetranitrate	Forbidden											
	Mannitol hexanitrate (dry)	Forbidden											
D	Mannitol hexanitrate (Nitromannite), wetted *with not less than 40 percent water, by mass or mixture of alcohol and water*	1.1A	NA0133	II	EXPLOSIVE 1.1A	111	None	62	None	Forbidden	Forbidden	E	1E, 5E
	Matches, block, see Matches, 'strike anywhere'												
	Matches, fusee	4.1	UN2254	III	FLAMMABLE SOLID		186	186	None	Forbidden	Forbidden	A	
	Matches, safety (*book, card or strike on box*)	4.1	UN1944	III	FLAMMABLE SOLID		186	186	None	25 kg	100 kg	A	
	Matches, strike anywhere	4.1	UN1331	III	FLAMMABLE SOLID		186	186	None	Forbidden	Forbidden	B	
	Matches, wax, Vesta	4.1	UN1945	III	FLAMMABLE SOLID		186	186	None	25 kg	100 kg	B	
	Matting acid, see Sulfuric acid												
D	Medicines, *corrosive, liquid,* n.o.s.	8	NA1760	II	CORROSIVE	B3	154	202	242	1 L	30 L	B	40
				III	CORROSIVE		154	203	241	5 L	60 L	A	40
D	Medicines, *corrosive, solid,* n.o.s.	8	NA1759	II	CORROSIVE		154	212	240	15 kg	50 kg	A	
				III	CORROSIVE		154	213	240	25 kg	100 kg	A	
D	Medicines, *flammable, liquid,* n.o.s.	3	NA1993	I	FLAMMABLE LIQUID		150	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID		150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1	150	203	242	60 L	220 L	A	
D	Medicines, *flammable, solid,* n.o.s.	4.1	NA1325	II	FLAMMABLE SOLID		151	212	240	15 kg	50 kg	B	
D	Medicines, *oxidizing substance, solid,* n.o.s.	5.1	NA1479	II	OXIDIZER		152	212	242	5 kg	25 kg	B	56, 58, 69, 106
D	Medicines, *poisonous, liquid,* n.o.s.	6.1	NA2810	I	POISON		153	201	243	1 L	30 L	B	40
				II	POISON		153	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	A	40
D	Medicines, *poisonous, solid,* n.o.s.	6.1	NA2811	I	POISON		153	211	242	5 kg	50 kg	B	
				II	POISON		153	212	242	25 kg	100 kg	B	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Memtetrahydrophthalic anhydride, see Corrosive liquids, n.o.s.												
	Mercaptans, liquid, n.o.s. *or* Mercaptan mixtures, liquid, n.o.s.	3	UN1228	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	Forbidden	60 L	B	40, 95, 102
	Mercaptans, liquid n.o.s. *or* Mercaptan mixtures, liquid, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3071	II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	C	40, 121
	5-Mercaptotetrazol-1-acetic acidd	1.4C	UN0448	II	EXPLOSIVE 1.4C		None	62	None	Forbidden	75 kg	E	1E, 5E
	Mercuric arsenate	6.1	UN1623	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercuric chloride	6.1	UN1624	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercuric compounds, see Mercury compounds, *etc.*												
	Mercuric nitrate	6.1	UN1625	II	POISON	N73	None	212	242	25 kg	100 kg	A	
+	Mercuric potassium cyanide	6.1	UN1626	I	POISON	N74, N75	None	211	242	5 kg	50 kg	A	26
	Mercuric sulfocyanate, see Mercury thiocyanate												
	Mercurol, see Mercury nucleate												
	Mercurous azide	Forbidden											
	Mercurous compounds, see Mercury compounds, *etc.*												
	Mercurous nitrate	6.1	UN1627	II	POISON		None	212	242	25 kg	100 kg	A	
A, W	Mercury	8	UN2809	III	CORROSIVE		164	164	240	35 kg	35 kg	B	40, 97
	Mercury acetate	6.1	UN1629	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury acetylide	Forbidden											
	Mercury ammonium chloride	6.1	UN1630	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury based pesticides, liquid, flammable, toxic, n.o.s. *flash point less than 23deg C.*	3	UN2778	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	40
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	40
	Mercury based pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3011	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	T14	153	202	241	60 L	220 L	A	40
	Mercury based pesticides, liquid, toxic, n.o.s.	6.1	UN3012	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Mercury based pesticides, solid, toxic, n.o.s.	6.1	UN2777	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POSION		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Mercury benzoate	6.1	UN1631	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury bromides	6.1	UN1634	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury compounds, liquid, n.o.s.	6.1	UN2024	I	POISON		None	201	243	1 L	30 L	B	40
				II	POISON		None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	B	40
	Mercury compounds, solid, n.o.s.	6.1	UN2025	I	POISON		None	211	242	5 kg	50 kg	A	
				II	POISON		None	212	242	25 kg	100 kg	A	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
A	Mercury *contained in manufactured articles*	8	UN2809	I	CORROSIVE		None	164	None	No limit	No limit	B	40
	Mercury cyanide	6.1	UN1636	II	POISON	N74, N75	None	212	242	25 kg	100 kg	A	26

	Mercury fulminate, wetted *with not less than 20 per cent water, or mixture of alcohol and water, by mass.*	1.1A	UN0135	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E	2E, 6E
	Mercury gluconate	6.1	UN1637	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury iodide	6.1	UN1638	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury iodide equabasic ammonobasic (iodide of Millon's base).	Forbidden											
	Mercury iodide, *solution*	6.1	UN1639	II	POISON		None	202	243	5 L	60 L	A	
	Mercury nitride	Forbidden											
	Mercury nucleate	6.1	UN1639	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury oleate	6.1	UN1640	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury oxide	6.1	UN1641	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury oxycyanide	Forbidden											
	Mercury oxycyanide, desensitized	6.1	UN1642	II	POISON		None	212	242	25 kg	100 kg	A	26, 91
	Mercury potassium iodide	6.1	UN1643	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury salicylate	6.1	UN1644	II	POISON		None	212	242	25 kg	100 kg	A	
+	Mercury sulfates	6.1	UN1645	II	POISON		None	212	242	25 kg	100 kg	A	
	Mercury thiocyanate	6.1	UN1646	II	POISON		None	212	242	25 kg	100 kg	A	
	Mesityl oxide	3	UN1229	III	FLAMMABLE LIQUID	B1, T1	None	203	242	60 L	220 L	A	
	Metal alkyl halides, n.o.s.	4.2	UN3049	I	SPONTANEOUSLY COMBUSTIBLE.	B9, B11, T28, T29, T40.	None	181	244	Forbidden	Forbidden	D	
	Metal alkyl hydrides, n.o.s.	4.2	UN3050	I	SPONTANEOUSLY COMBUSTIBLE.	B9, B11, T28, T29, T40.	None	181	244	Forbidden	Forbidden	D	
D	Metal alkyl, solution, n.o.s.	3	NA9195	II	FLAMMABLE LIQUID		150	202	242	1 L	4 L	B	
	Metal alkyls, n.o.s.	4.2	UN2003	I	SPONTANEOUSLY COMBUSTIBLE.	B11, T42	None	181	244	Forbidden	Forbidden	D	
	Metal catalyst, dry	4.2	UN2881	I	SPONTANEOUSLY COMBUSTIBLE.	N34	None	187	None	Forbidden	Forbidden	B	
	Metal catalyst, wetted *with not less than 40 per cent water or other suitable liquid, by mass, finely divided, activated or spent.*	4.2	UN1378	II	SPONTANEOUSLY COMBUSTIBLE.	A2, A8, N34	None	212	None	Forbidden	50 kg	G	
	Metal powders, flammable, n.o.s.	4.1	UN3089	II	FLAMMABLE SOLID		151	212	240	15 kg	50 kg	B	
				III	FLAMMABLE SOLID		151	212	140	25 kg	100 kg	B	
	Metal salts of methyl nitramine (dry)	Forbidden											
	Metaldehyde	4.1	UN1332	III	FLAMMABLE SOLID	A1	151	213	240	25 kg	100 kg	A	
	Methacrylaldehyde	3	UN2396	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	E	40
	Methacrylic acid, inhibited	8	UN2531	III	CORROSIVE	T8	154	203	241	5 L	60 L	A	9; 12, 48
	Methacrylonitrile, inhibited	3	UN3079	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	D	12, 40, 48
	Methallyl alcohol	3	UN2614	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Methane and hydrogen, mixtures, see Hydrogen and methane, mixtures, *etc.*												
	Methane, compressed *or* Natural gas, compressed (*with high methane content*).	2.1	UN1971		FLAMMABLE GAS		306	302	302	Forbidden	150 kg	E	40
	Methane, refrigerated liquid (*cryogenic liquid*)*or* Natural gas, refrigerated liquid (*cryogenic liquid*)*, with high methane content).*	2.1	UN1972		FLAMMABLE GAS		None	None	318	Forbidden	Forbidden	D	40
	Methanol, *or* Methyl alcohol	3	UN1230	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	B	40
	Methazoic acid	Forbidden											
	4-Methoxy-4-methylpentan-2-one	3	UN2293	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	1-Methoxy-2-propanol	3	UN3092	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	44
+	Methoxymethyl isocyanate	3	UN2605	I	FLAMMABLE LIQUID, POISON.	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	30 L	D	40
	Methyl acetate	3	UN1231	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Methyl acrylate, inhibited	3	UN1919	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Methyl alcohol, *see* Methanol												
	Methyl allyl chloride	3	UN2554	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	
	Methyl amyl ketone, see Amyl methyl ketone												
	Methyl benzoate	6.1	UN2938	III	KEEP AWAY FROM FOOD.	T1	153	203	240	60 L	220 L	A	
	Methyl bromide	2.3	UN1062		POISON GAS	9, B14	None	193	314, 315	Forbidden	25 kg	D	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Methyl bromide and chloropicrin mixtures with more than 2 per cent chloropicrin, see Chloropicrin and methyl bromide mixtures.												
	Methyl bromide and chloropicrin mixtures with not more than 2 per cent chloropicrin, see Methyl bromide.												
	Methyl bromide and ethylene dibromide mixtures, *liquid.*	6.1	UN1647	I	POISON	2, B9, B14, B32, B74, N65, T38, T43, T45.	None	227	244	Forbidden	30 L	C	40
	Methyl bromoacetate	6.1	UN2643	II	POISON	T9	None	202	243	5 L	60 L	D	40
	3-Methyl-1-butene	3	UN2561	I	FLAMMABLE LIQUID	T20	None	201	243	1 L	30 L	E	
	2-Methyl-1-butene	3	UN2459	I	FLAMMABLE LIQUID	T14	None	201	243	1 L	30 L	E	
	2-Methyl-2-butene	3	UN2460	II	FLAMMABLE LIQUID	T14	None	202	242	5 L	60 L	E	
	Methyl tert butyl ether	3	UN2398	II	FLAMMABLE LIQUID	T14	150	202	242	5 L	60 L	E	
	Methyl butyrate	3	UN1237	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Methyl chloride	2.1	UN1063		FLAMMABLE GAS		306	304	314, 315	Forbidden	25 kg	D	40
	Methyl chloride and chloropicrin mixtures, see Chloropicrin and methyl chloride mixtures.												
	Methyl chloride and methylene chloride mixtures	2.1	UN1912		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	D	40
	Methyl chloroacetate	6.1	UN2295	II	POISON	T11	None	202	243	5 L	60 L	C	
	Methyl chlorocarbonate, see Methyl chloroformate												
	Methyl chloroform, see 1,1,1-Trichloroethane												
	Methyl chloroformate	6.1	UN1238	I	POISON, FLAMMABLE LIQUID, CORROSIVE.	1, A3, A6, A7, B9, B14, B30, B72, N34, T38, T43, T44.	None	226	244	Forbidden	Forbidden	D	21, 40 100
	Methyl-2-chloropropionate	3	UN2933	III	FLAMMABLE LIQUID	B1, T7	150	203	242	60 L	220 L	A	
	Methyl cyanide	3	UN1648	II	FLAMMABLE LIQUID, POISON.	T14	None	202	243	1 L	60 L	B	40
	Methyl cyclohexane	3	UN2296	II	FLAMMABLE LIQUID	B1, T1	150	202	242	5 L	60 L	B	
	Methyl cyclohexanols, *flash point not more than 60.5 degrees C.*	3	UN2617	III	FLAMMABLE LIQUID	B1, T2	150	203	242	60 L	220 L	A	
	Methyl cyclohexanone	3	UN2297	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Methyl cyclopentane	3	UN2298	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Methyl dichloroacetate	6.1	UN2299	III	*KEEP AWAY FROM* FOOD.	T1	153	203	241	60 L	220 L	A	
	Methyl ethyl ether, see Ethyl methyl ether												
	Methyl ethyl ketone, *see* Ethyl methyl ketone												
	Methyl ethyl ketone peroxide, in solution with more than 9 per cent by mass active oxygen.	Forbidden											
	2-Methyl-5-ethylpyridine	6.1	UN2300	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	Methyl fluoride	2.1	UN2454		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	E	40
	Methyl formate	3	UN1243	I	FLAMMABLE LIQUID	T20	150	201	243	1 L	30 L	E	
+	Methyl iodide	6.1	UN2644	II	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	5 L	60 L	A	12, 40, 48
	Methyl isobutyl carbinol	3	UN2053	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Methyl isobutyl ketone	3	UN1245	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Methyl isobutyl ketone peroxide, in solution with more than 9 per cent by mass active oxygen.	Forbidden											

	Methyl isocyanate	6.1	UN2480	I	POISON, FLAMMABLE LIQUID.	1, A7, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	Forbidden	D	26, 40
	Methyl isopropenyl ketone, inhibited	3	UN1246	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	
+	Methyl isothiocyanate	3	UN2477	II	FLAMMABLE LIQUID. POISON.	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	60 L	A	
	Methyl isovalerate	3	UN2400	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Methyl magnesium bromide, in ethyl ether	4.3	UN1928	I	DANGEROUS WHEN WET, FLAMMABLE LIQUID.		None	201	243	Forbidden	1 L	D	
	Methyl mercaptan	2.3	UN1064		POISON GAS, FLAMMABLE GAS.	2, B7, B9, B14	None	304	314, 315	Forbidden	25 kg	D	50
	Methyl mercaptopropionaldehyde, see Thia-4-pentanal.												
	Methyl methacrylate monomer, inhibited	3	UN1247	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40
	Methyl nitramine (dry)	Forbidden											
	Methyl nitrate	Forbidden											
	Methyl nitrite	Forbidden											
	Methyl norbornene dicarboxylic anhydride, see Corrosive liquids, n.o.s.												
+	Methyl orthosilicate	3	UN2606	I	FLAMMABLE LIQUID. POISON.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	30 L	E	40
D	Methyl parathion *liquid*	6.1	NA9018	II	POISON	N76, T14	None	202	242	Forbidden	1 L	A	40
D	Methyl parathion *solid*	6.1	NA2783	II	POISON	N77	None	212	242	25 kg	100 kg	A	40
D	Methyl phosphonic dichloride	6.1	NA9206	I	POISON, CORROSIVE.	2, A9, B9, B14, B32, B74, N34, N43, T38, T43, T45.	None	227	244	Forbidden	Forbidden	C	
	Methyl phosphonothioic dichloride, anhydrous, see Corrosive liquid, n.o.s.												
D	Methyl phosphonous dichloride, *pyrophoric liquid*	6.1	NA2845	I	POISON, SPONTANEOUSLY COMBUSTIBLE.	2, B9, B14, B16, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	18
	Methyl picric acid (heavy metal salts of)	Forbidden											
	Methyl propionate	3	UN1248	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Methyl propyl ether	3	UN2612	II	FLAMMABLE LIQUID	T14	150	202	242	5 L	60 L	E	40
	Methyl propyl ketone	3	UN1249	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Methyl sulfate, see Dimethyl sulfate												
	Methyl sulfide, see Dimethyl sulfide												
	Methyl trichloroacetate	6.1	UN2533	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	A	
	Methyl trimethylol methane trinitrate	Forbidden											
	Methyl vinyl ketone	3	UN1251	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Methylacetylene and propadiene mixtures, stabilized.	2.1	UN1060		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40
	Methylal	3	UN1234	II	FLAMMABLE LIQUID	T14	None	202	242	5L	60 L	E	
	Methylamine, anhydrous	2.3	UN1061		POISON GAS, FLAMMABLE GAS.	3, B14	None	304	314, 315	Forbidden	150 kg	B	40
	Methylamine, aqueous solution	3	UN1235	II	FLAMMABLE LIQUID, CORROSIVE.	B1, T8	150	202	242	5 L	60 L	E	41
	Methylamine dinitramine and dry salts thereof	Forbidden											
	Methylamine nitroform	Forbidden											
	Methylamine perchlorate (dry)	Forbidden											
	Methylamyl acetate	3	UN1233	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	N-Methylaniline	6.1	UN2294	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	alpha-Methylbenzyl alcohol	6.1	UN2937	III	KEEP AWAY FROM FOOD.	T1	153	203	241	60 L	220 L	A	
	3-Methylbutan-2-one	3	UN2397	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	N-Methylbutylamine	3	UN2945	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40
	Methylchloromethyl ether	6.1	UN1239	I	POISON, FLAMMABLE LIQUID.	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	Forbidden	D	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Methylchlorosilane	2.3	UN2534		POISON GAS, FLAMMABLE GAS.	2, A2, A3, A7, B9, B14, N34.	None	226	314, 315	Forbidden	25 kg	D	40
D	Methyldichloroarsine	6.1	NA1556	I	POISON	2	None	192	None	Forbidden	Forbidden	D	40, 95
	Methyldichlorosilane	4.3	UN1242	I	DANGEROUS WHEN WET, CORROSIVE, FLAMMABLE LIQUID.	A2, A3, A7, B6, B77, N34, T16, T26.	None	201	243	Forbidden	1 L	D	21, 28, 40, 49, 100
	Methylene chloride, see Dichloromethane												
	Methylene glycol dinitrate	Forbidden											
	2-Methylfuran	3	UN2301	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	E	
	a-Methylglucoside tetranitrate	Forbidden											
	a-Methylglycerol trinitrate	Forbidden											
	5-Methylhexan-2-one	3	UN2302	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Methylhydrazine	6.1	UN1244	I	POISON, FLAMMABLE LIQUID, CORROSIVE.	1, B9, B14, B30, B72, B77, N34, T38, T43, T44.	None	227	244	Forbidden	Forbidden	D	21, 49, 100
	Methylmorpholine	3	UN2535	II	FLAMMABLE LIQUID, CORROSIVE.	B6, T8	None	202	243	1 L	5 L	B	40
	Methylpentadienes	3	UN2461	II	FLAMMABLE LIQUID	T7	150	202	241	5 L	60 L	E	
	2-Methylpentan-2-ol	3	UN2560	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Methylpentanes, see Hexanes												
	Methylphenyldichlorosilane	8	UN2437	II	CORROSIVE	T8, T26	154	202	242	1 L	30 L	C	40
	1-Methylpiperidine	3	UN2399	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Methyltetrahydrofuran	3	UN2536	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	
	Methyltrichlorosilane	3	UN1250	I	FLAMMABLE LIQUID, CORROSIVE.	A7, B6, B77, N34, T14, T26.	None	201	243	Forbidden	2.5 L	B	40
	alpha-Methylvaleraldehyde	3	UN2367	II	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	B	
	Mine rescue equipment containing carbon dioxide, see Carbon dioxide.												
	Mines *with bursting charge*	1.1F	UN0136	II	EXPLOSIVE 1.1F		63(b)	62	None	Forbidden	Forbidden	E	
	Mines *with bursting charge*	1.1D	UN0137	II	EXPLOSIVE 1.1D		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E
	Mines *with bursting charge*	1.2D	UN0138	II	EXPLOSIVE 1.2D		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E
	Mines *with bursting charge*	1.2F	UN0294	II	EXPLOSIVE 1.2F		63(b)	62	None	Forbidden	Forbidden	E	
	Mixed acid, see Nitrating acid, mixtures *etc.*												
	Molybdenum pentachloride	8	UN2508	III	CORROSIVE	T8, T26	154	213	240	25 kg	100 kg	C	40
	Monochloroacetone (unstabilized)	Forbidden											
	Monochloroethylene, see Vinyl chloride, inhibited												
	Monoethanolamine, see Ethanolamine, solutions												
	Monoethylamine, see Ethylamine												
	Morpholine	3	UN2054	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Morpholine; aqueous, mixture, see Corrosive liquids, n.o.s.												
	Motor fuel anti-knock compounds *see* Motor fuel anti-knock mixtures.												
+	Motor fuel anti-knock mixtures	6.1	UN1649	I	POISON, FLAMMABLE LIQUID.	14, B9, B12, B90, T26, T39.	None	201	244	Forbidden	30 L	E	40
	Motor spirit, *see* Gasoline												
	Motor vehicle, see Vehicles, self-propelled												
	Motorcycles, see Vehicles, self-propelled												
	Muriatic acid, see Hydrochloric acid solution												
	Musk xylene, *see* 5-tert-Butyl2,4,6-trinitro-m-xylene												
	Naphtha	3	UN2553	II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	

	Naphtha, *petroleum*	3	UN1255	III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
				I	FLAMMABLE LIQUID	T8	150	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Naphtha, *solvent*	3	UN1256	II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Naphthalene, crude *or* refined	4.1	UN1334	III	FLAMMABLE SOLID	A1	151	213	240	25 kg	100 kg	A	
	Naphthalene diazonide	Forbidden											
	Naphthalene, molten	4.1	UN2304	III	FLAMMABLE SOLID	A1, T8	151	213	241	25 kg	100 kg	C	
	Naphthyl amineperchlorate	Forbidden											
	alpha-Naphthylamine	6.1	UN2077	III	KEEP AWAY FROM FOOD.	T7	153	213	240	100 kg	200 kg	A	
	beta-Naphthylamine	6.1	UN1650	II	POISON	T12, T26	None	212	242	25 kg	100 kg	A	
	Naphthylthiourea	6.1	UN1651	II	POISON		None	212	242	25 kg	100 kg	A	
	Naphthylurea	6.1	UN1652	II	POISON		None	212	242	25 kg	100 kg	A	
	Natural gases (with high methane content), see Methane, *etc. (UN 1971, UN 1972).*												
	Natural gasoline	3	UN1257	I	FLAMMABLE LIQUID	T8	150	201	243	1L	30L	E	
				II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	
	Neohexane, see Hexanes												
	Neon, compressed	2.2	UN1065		NONFLAMMABLE GAS.		306	302	302	75 kg	150 kg	A	
	Neon, refrigerated liquid (*cryogenic liquid*)	2.2	UN1913		NONFLAMMABLE GAS.		320	316	None	50 kg	500 kg	B	
	New explosive or explosive device, see sections 173.51 and 173.56.												
	Nickel carbonyl	6.1	UN1259	I	POISON, FLAMMABLE LIQUID.	1	None	198	None	Forbidden	Forbidden	D	18, 40
	Nickel cyanide	6.1	UN1653	II	POISON	N74, N75	None	212	242	25 kg	100 kg	A	26
	Nickel nitrate	5.1	UN2725	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	A	
	Nickel nitrite	5.1	UN2726	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	A	56, 58
	Nickel picrate	Forbidden											
	Nicotine	6.1	UN1654	II	POISON		None	202	243	5 L	60 L	A	
	Nicotine compounds, liquid, n.o.s. *or* Nicotine preparations, liquid, n.o.s.	6.1	UN3144	I	POISON	A4, T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	B	40
	Nicotine compounds, solid, n.o.s. *or* Nicotine preparations, solid, n.o.s.	6.1	UN1655	I	POISON		None	211	242	5 kg	50 kg	B	
				II	POISON		None	212	242	25 kg	100 kg	A	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Nicotine hydrochloride *or* Nicotine hydrochloride solution.	6.1	UN1656	II	POISON		None	202	243	5 L	60 L	A	
	Nicotine salicylate	6.1	UN1657	II	POISON		None	212	242	25 kg	100 kg	A	
	Nicotine sulfate, *solid*	6.1	UN1658	II	POISON		None	212	242	25 kg	100 kg	A	
	Nicotine sulfate, *solution*	6.1	UN1658	II	POISON	T14	None	202	243	5 L	60 L	A	
	Nicotine tartrate	6.1	UN1659	II	POISON		None	212	242	25 kg	100 kg	A	
	Nitrated paper (unstable)	Forbidden											
	Nitrates, inorganic, n.o.s.	5.1	UN1477	II	OXIDIZER		152	212	240	5 kg	25 kg	A	46
	Nitrates of diazonium compounds	Forbidden											
	Nitrating acid mixtures spent *with not more than 50 per cent nitric acid.*	8	UN1826	II	CORROSIVE	B2, T12, T27	None	158	242	Forbidden	30 L	D	40
	Nitrating acid mixtures, spent *with 50 per cent or more nitric acid.*	8	UN1826	I	CORROSIVE, OXIDIZER.	T12, T27	None	158	243	Forbidden	2.5 L	D	40, 66, 89
	Nitrating acid mixtures *with not more than 50 per cent nitric acid.*	8	UN1796	II	CORROSIVE	B2, T12, T27	None	158	242	Forbidden	30 L	D	40
	Nitrating acid mixtures *with 50 per cent or more nitric acid.*	8	UN1796	I	CORROSIVE, OXIDIZER.	T12, T27	None	158	243	Forbidden	2.5 L	D	40, 66, 89
	Nitric acid *other than red fuming with more than 70 percent nitric acid.*	8	UN2031	I	CORROSIVE	B12, B53, T9, T27.	None	158	243	Forbidden	2.5 L	D	110, 111
	Nitric acid *other than red fuming, with not more than 70 percent nitric acid.*	8	UN2031	II	CORROSIVE	B2, B12, B53, T9, T27.	None	158	242	Forbidden	30 L	D	110, 111
+	Nitric acid, red fuming	8	UN2032	I	CORROSIVE, OXIDIZER, POISON.	2, 89, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	40, 66, 74, 89, 90, 95

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or rail car	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Nitric oxide	2.3	UN1660		POISON GAS	2, B12, B37, B46, B50, B60, B77	None	337	None	Forbidden	Forbidden	D	40
	Nitric oxide and dinitrogen tetroxide mixtures (Nitric oxide and nitrogen dioxide mixtures).	2.3	UN1975		POISON GAS, OXIDIZER	3, B7, B9, B12, B14, B45, B46, B61, B66, B67, B77	None	337	None	Forbidden	Forbidden	D	40
	Nitrites, inorganic, n.o.s.	5.1	UN2627	II	OXIDIZER	A33	152	212	None	5 kg	25 kg	A	46, 56, 58
	3-Nitro-4-chlorobenzotrifluoride	6.1	UN2307	II	POISON	T8	None	202	243	5 L	60 L	A	40
	6-Nitro-4-diazotoluene-3-sulfonic acid (dry)	Forbidden											
	Nitro isobutane triol trinitrate	Forbidden											
	N-Nitro-N-methylglycolamide nitrate	Forbidden											
	2-Nitro-2-methylpropanol nitrate	Forbidden											
	Nitro urea	1.1D	UN0147	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	N-Nitrosaniline	Forbidden											
	Nitroanilines (o; m; p;)	6.1	UN1661	II	POISON	T14	None	212	242	25 kg	100 kg	A	
	Nitroanisole	6.1	UN2730	III	KEEP AWAY FROM FOOD	T8	153	213	240	100 kg	200 kg	A	
	Nitrobenzene	6.1	UN1662	II	POISON	T14	None	202	243	5 L	60 L	A	40
	m-Nitrobenzene diazonium perchlorate	Forbidden											
	Nitrobenzenesulfonic acid	8	UN2305	II	CORROSIVE		154	212	240	1 L	30 L	A	
	Nitrobenzol, see Nitrobenzene												
	5-Nitrobenzotriazol	1.1D	UN0385	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Nitrobenzotrifluorides	6.1	UN2306	II	POISON	T8	None	202	243	5 L	60 L	A	40
	Nitrobromobenzenes liquid	6.1	UN2732	III	KEEP AWAY FROM FOOD	T8; T38	150	203	241	60 L	220 L	A	48
	Nitrobromobenzenes solid	6.1	UN2732	III	KEEP AWAY FROM FOOD		153	213	240	100 kg	200 kg	A	48
	Nitrocellulose, dry or wetted with less than 25 per cent water (or alcohol), by mass.	1.1D	UN0340	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	4E, 27E
	Nitrocellulose, plasticized with not less than 18 per cent plasticizing substance, by mass.	1.3C	UN0343	II	EXPLOSIVE 1.3C		None	362	None	Forbidden	Forbidden	B	1E, 5E
	Nitrocellulose, solution, flammable with not more than 12.6 per cent nitrogen, by mass, and not more than 55 per cent nitrocellulose.	3	UN2059	II	FLAMMABLE LIQUID	T8; T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1; T7; T30	150	203	242	60 L	220 L	A	
	Nitrocellulose, unmodified, or plasticized with less than 18 per cent plasticizing substance, by mass.	1.1D	UN0341	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	4E, 27E
	Nitrocellulose, wetted with not less than 25 per cent alcohol, by mass.	1.3C	UN0342	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Nitrocellulose with alcohol not less than 25 per cent alcohol by mass, and not more than 12.6 per cent nitrogen, by dry mass.	4.1	UN2556	II	FLAMMABLE SOLID		151	212	None	1 kg	15 kg	D	28
	Nitrocellulose with plasticizing not less than 18 per cent plasticizing substance, by mass, and not more than 12.6 per cent nitrogen, by dry mass.	4.1	UN2557	II	FLAMMABLE SOLID		151	212	None	1 kg	15 kg	D	28
	Nitrocellulose with water not less than 25 per cent water, by mass.	4.1	UN2555	II	FLAMMABLE SOLID		151	212	None	15 kg	50 kg	E	28
	Nitrochlorobenzene, see Chloronitrobenzenes etc.												
	Nitrocresols	6.1	UN2446	III	KEEP AWAY FROM FOODS	T8	153	213	240	100 kg	200 kg	A	
	Nitroethane	3	UN2842	III	FLAMMABLE LIQUID	B1; T8	150	203	242	60 L	220 L	A	
	Nitroethyl nitrate	Forbidden											

	Nitroethylene polymer	Forbidden														
	Nitrogen, compressed	2.2	UN1066		NONFLAMMABLE GAS.		306	302	314, 315	75 kg	150 kg	A				
	Nitrogen dioxide, liquefied *see* Dinitrogen tetroxide, liquefied.															
	Nitrogen fertilizer solution, see Fertilizer ammoniating solution *etc.*.															
	Nitrogen, mixtures with rare gases, see Rare gases and nitrogen mixtures.															
	Nitrogen peroxide, see Dinitrogen tetroxide, liquefied.															
	Nitrogen, refrigerated liquid (*cryogenic liquid*)	2.2	UN1977		NONFLAMMABLE GAS.		320	316	318	50 kg	500 kg	A				
	Nitrogen tetroxide and nitric oxide mixtures, see Nitric oxide and nitrogen tetroxide mixtures.															
	Nitrogen tetroxide, see Dinitrogen tetroxide, liquefied.															
	Nitrogen trichloride	Forbidden														
	Nitrogen trifluoride	2.2	UN2451		NONFLAMMABLE GAS, OXIDIZER.		None	302	None	Forbidden	25 kg	D		40		
	Nitrogen triiodide	Forbidden														
	Nitrogen triiodide monoamine	Forbidden														
	Nitrogen trioxide	2.3	UN2421		POISON GAS, OXIDIZER.	1	None	336	245	Forbidden	Forbidden	D		40		
	Nitroglycerin, desensitized *with not less than 40 per cent non-volatile water insoluble phlegmatizer, by mass.*	1.1D	UN0143	II	EXPLOSIVE 1.1D, POISON.		None	62	None	Forbidden	Forbidden	B		1E, 4E, 21E		
	Nitroglycerin, liquid, not desensitized	Forbidden														
	Nitroglycerin, solution in alcohol, *with more than 1% but not more than 5% nitroglycerin.*	3	UN3064	II	FLAMMABLE LIQUID	N8	None	202	None	Forbidden	5 L	E				
	Nitroglycerin, solution in alcohol, *with more than 1 percent but not more than 10 percent nitroglycerin.*	1.1D	UN0144	II	EXPLOSIVE 1.1D	20	None	62	None	Forbidden	Forbidden	B		1E, 4E, 21E		
	Nitroglycerin solution in alcohol *with not more than 1 per cent nitroglycerin.*	3	UN1204	II	FLAMMABLE LIQUID	N34, T25	None	202	None	5 L	60 L	B				
	Nitroguanidine nitrate	Forbidden														
	Nitroguanidine *or* Picrite, *dry or wetted with less than 20 per cent water, by mass.*	1.1D	UN0282	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		1E, 5E		
	Nitroguanidine, wetted *or* Picrite, wetted *with not less than 20 per cent water, by mass.*	4.1	UN1336	I	FLAMMABLE SOLID	A8, A19, A20, N41.	None	211	None	1 kg	15 kg	E		28		
	1-Nitrohydantoin	Forbidden														
	Nitrohydrochloric acid	8	UN1798	I	CORROSIVE	A3, B10, N41, T18, T27.	None	201	242	Forbidden	2.5 L	D		40, 66, 74, 89, 90		
	Nitromannite (dry)	Forbidden														
	Nitromannite, wetted, *see* Mannitol hexanitrate, *etc.*															
	Nitromethane	3	UN1261	II	FLAMMABLE LIQUID	T25	150	202	None	Forbidden	60 L	A				
	Nitromuriatic acid, see Nitrohydrochloric acid															
	Nitronaphthalene	4.1	UN2538	III	FLAMMABLE SOLID	A1	151	213	240	25 kg	100 kg	A				
	Nitrophenols (*o-; m-; p-;*)	6.1	UN1663	III	KEEP AWAY FROM FOOD.	T8, T38	153	213	240	100 kg	200 kg	A				
	m-Nitrophenyldinitro methane	Forbidden														
	Nitropropanes	3	UN2608	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A				
	p-Nitrosodimethylaniline	4.2	UN1369	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N34	None	212	241	15 kg	50 kg	D		34		
D	Nitrosoguanidine	1.1A	NA0473	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	E		2E, 6E		
	Nitrostarch, *dry or wetted with less than 20 per cent water, by mass.*	1.1D	UN0146	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B		1E, 5E		
	Nitrostarch, wetted *with not less than 20 per cent water, by mass.*	4.1	UN1337	I	FLAMMABLE SOLID	A8, A19, A20, N41.	None	211	None	1 kg	15 kg	D		28		
	Nitrosugars (dry)	Forbidden														
	Nitrosyl chloride	2.3	UN1069		POISON GAS, CORROSIVE.	3, B14	None	304	314, 315	Forbidden	Forbidden	D		40		
	Nitrosylsulfuric acid	8	UN2308	II	CORROSIVE	A3, A6, A7, B2, N34, T9, T27.	154	202	242	1 L	30 L	D		40, 66, 74, 89, 90		
	Nitrotoluenes, *liquid o-; m-; p-;*	6.1	UN1664	II	POISON	T14	None	202	243	5 L	60 L	A				
	Nitrotoluenes, *solid m-, or p-*	6.1	UN1664	II	POISON	T14	None	212	242	25 kg	100 kg	A				

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or rail car	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Nitrotoluidines (mono)	6.1	UN2660	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Nitrotriazolone or NTO	1.1D	UN0490	II	EXPLOSIVE 1.1D		None	62		Forbidden	Forbidden	B	1E, 5E, 25E
	Nitrous oxide and carbon dioxide mixtures, see Carbon dioxide and nitrous oxide mixtures.												
	Nitrous oxide, compressed	2.2	UN1070		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	40
	Nitrous oxide, refrigerated liquid	2.2	UN2201		NONFLAMMABLE GAS.	B6	None	None	314, 315	75 kg	150 kg	B	40
	Nitroxylenes, (o-; m-; p-)	6.1	UN1665	II	POISON	T14	None	202	243	5 L	60 L	A	
	Nitroxylol, see Nitroxylenes												
	Nonanes	3	UN1920	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Nonflammable gas, n.o.s., see Compressed or Liquefied gases, etc. (*UN 1955, UN 1956*).												
	Nonliquefied gases, see Compressed gases, etc												
	Nonliquefied hydrocarbon gas, see Hydrocarbon gases, compressed, n.o.s.												
	Nonyltrichlorosilane	8	UN1799	II	CORROSIVE	A7, B2, B6, N34, T8, T26.	None	202	242	Forbidden	30 L	C	40
	2,5 Norbornadiene (Dicycloheptadiene)	3	UN2251	II	FLAMMABLE LIQUID		150	202	241	5 L	60 L	D	
	Nordhausen acid, see Sulfuric acid, fuming *etc*												
	Octadecyltrichlorosilane	8	UN1800	II	CORROSIVE	A7, B2, B6 N34, T8.	None	202	242	Forbidden	30 L	C	40
	Octadiene	3	UN2309	II	FLAMMABLE LIQUID	B1, T1	150	202	242	5 L	60 L	B	
	1,7-Octadine-3,5-dyne-1,8-dimethoxy-9-octadecynoic acid.	Forbidden											
	Octafluorobut-2-ene	2.2	UN2422		NONFLAMMABLE GAS.		None	304	314, 315	75 kg	150 kg	A	
	Octafluorocyclobutane, *RC318*	2.2	UN1976		NONFLAMMABLE GAS.		None	304	314, 315	75 kg	150 kg	A	
	Octafluoropropane, *R218*	2.2	UN2424		NONFLAMMABLE GAS.		None	304	314, 315	75 kg	150 kg	A	
	Octanes	3	UN1262	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Octogen, *see* Cyclotetramethylene tetranitramine, etc.												
	Octolite or Octol, *dry or wetted with less than 15 per cent water, by mass.*	1.1D	UN0266	II	EXPLOSIVE 1.1D		None	62		Forbidden	Forbidden	B	1E, 5E
	Octyl aldehydes, *flammable*	3	UN1191	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
+	tert-Octylmercaptan	6.1	UN3023	II	POISON, FLAMMABLE LIQUID.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	60 L	B	40
	Octyltrichlorosilane	8	UN1801	II	CORROSIVE	A7, B2, B6, N34, T8, T26.	None	202	242	Forbidden	30 L	C	40
	Oil gas	2.1	UN1071		FLAMMABLE GAS		None	304	314, 315	Forbidden	150 kg	D	40
	Oleum, see Sulfuric acid, fuming												
	Organic peroxide type A, liquid or solid	Forbidden											
	Organic peroxide type B, liquid	5.2	UN3101	II	ORGANIC PEROXIDE EXPLOSIVE.	53	None	225	None	Forbidden	Forbidden	D	12, 40
	Organic peroxide type B, liquid, temperature controlled	5.2	UN3111	II	ORGANIC PEROXIDE EXPLOSIVE.	53	None	225	None	Forbidden	Forbidden	D	2, 40

	Organic peroxide type B, solid	5.2	UN3102	II	ORGANIC PEROXIDE EXPLOSIVE.	53	None	225	None	Forbidden	Forbidden	D	12, 40
	Organic peroxide type B, solid, temperature controlled.	5.2	UN3112	II	ORGANIC PEROXIDE EXPLOSIVE.	53	None	225	None	Forbidden	Forbidden	D	2, 40
	Organic peroxide type C, liquid	5.2	UN3103	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	D	12, 40
	Organic peroxide type C, liquid, temperature controlled.	5.2	UN3113	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	D	2, 40
	Organic peroxide type C, solid	5.2	UN3104	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	D	12, 40
	Organic peroxide type C, solid, temperature controlled.	5.2	UN3114	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	D	2, 40
	Organic peroxide type D, liquid	5.2	UN3105	II	ORGANIC PEROXIDE.		152	225	None	5 L	10 L	D	12, 40
	Organic peroxide type D, liquid, temperature controlled.	5.2	UN3115	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	D	2, 40
	Organic peroxide type D, solid	5.2	UN3106	II	ORGANIC PEROXIDE.		152	225	None	5 kg	10 kg	D	12, 40
	Organic peroxide type D, solid, temperature controlled.	5.2	UN3116	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	D	2, 40
	Organic peroxide type E, liquid	5.2	UN3107	II	ORGANIC PEROXIDE.		152	225	None	10 L	25 L	D	12, 40
	Organic peroxide type E, liquid, temperature controlled.	5.2	UN3117	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	D	2, 40
	Organic peroxide type E, solid	5.2	UN3108	II	ORGANIC PEROXIDE.		152	225	None	10 kg	25 kg	D	12, 40
	Organic peroxide type E, solid, temperature controlled.	5.2	UN3118	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	D	2, 40
	Organic peroxide type F, liquid	5.2	UN3109	II	ORGANIC PEROXIDE.		152	225	225	10 L	25 L	D	12, 40
	Organic peroxide type F, liquid, temperature controlled.	5.2	UN3119	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	D	2, 40
	Organic peroxide type F, solid	5.2	UN3110	II	ORGANIC PEROXIDE.	T42	152	225	None	10 kg	25 kg	D	12, 40
	Organic peroxide type F, solid, temperature controlled.	5.2	UN3120	II	ORGANIC PEROXIDE.		None	225	None	Forbidden	Forbidden	D	2, 40
D	Organic phosphate, Organic phosphate compound, *or* Organic phosphorus compound; mixed with compressed gas.	2.3	NA1955		POISON GAS	3	None	334	None	Forbidden	Forbidden	D	40
	Organochlorine pesticides liquid, flammable, toxic, n.o.s. *flash point less than 23 degrees C.*	3	UN2762	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Organochlorine pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN2995	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	242	60 L	220 L	A	40
	Organochlorine pesticides, liquid, toxic, n.o.s.	6.1	UN2996	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	242	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Organochlorine pesticides, solid toxic n.o.s.	6.1	UN2761	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Organophosphorus pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2784	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Organophosphorus pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3017	I	POISON, FLAMMABLE LIQUID.	N76, T49	None	201	243	1 L	30 L	B	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
				II	POISON, FLAMMABLE LIQUID.	N76, T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, N76, T14	153	203	242	60 L	220 L	A	40
	Organophosphorus pesticides, liquid, toxic, n.o.s.	6.1	UN3018	I	POISON	N76, T42	None	201	243	1 L	30 L	B	40
				II	POISON	N76, T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	N76, T14	153	203	241	60 L	220 L	A	40
	Organophosphorus pesticides, solid, toxic, n.o.s.	6.1	UN2783	I	POISON	N77	None	211	242	5 kg	50 kg	A	40
				II	POISON	N77	None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.	N77	153	213	240	100 kg	200 kg	A	40
	Organotin compounds, liquid, n.o.s.	6.1	UN2788	I	POISON	A3, N33, N34, T42.	None	201	243	1 L	30 L	B	40
				II	POISON	A3, N33, N34, T14.	None	202	243	5 L	60 L	A	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Organotin compounds, solid, n.o.s.	6.1	UN3146	I	POISON	A5	None	211	242	5 kg	50 kg	B	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Organotin pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23deg C.*	3	UN2787	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Organotin pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3019	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	242	60 L	220 L	A	40
	Organotin pesticides, liquid, toxic, n.o.s.	6.1	UN3020	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Organotin pesticides, solid, toxic, n.o.s.	6.1	UN2786	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Orthonitroaniline, see Nitroanilines *etc.*												
	Osmium tetroxide	6.1	UN2471	I	POISON	A8, N33, N34	None	211	242	5 kg	50 kg	B	40
AD	Other regulated substances, liquid, n.o.s.	9	NA3082	III	CLASS 9		155	203	241	No limit	No limit	A	
AD	Other regulated substances, solid, n.o.s.	9	NA3077	III	CLASS 9		155	213	240	No limit	No limit	A	
	Oxalates, *water soluble*	6.1	UN2449	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Oxidizing substances, liquid, corrosive, n.o.s.	5.1	UN3098	I	OXIDIZER, CORROSIVE.		None	201	244	Forbidden	2.5 L	B	34, 56, 58, 69, 106
				II	OXIDIZER, CORROSIVE.		None	202	243	1 L	5 L	D	34, 56, 58, 69, 106
				III	OXIDIZER, CORROSIVE.		152	203	242	2.5 L	30 L	B	34, 56, 58, 69, 106

	Oxidizing substances liquid, n.o.s.	5.1	UN3139	II	OXIDIZER	A2	152	202	242	1 L	5 L	B	56, 58, 69, 106		
	Oxidizing substances, liquid, poisonous, n.o.s.	5.1	UN3099	I	OXIDIZER, POISON		None	201	244	Forbidden	2.5 L	D	56, 58, 95, 106		
				II	OXIDIZER, POISON		None	202	243	1 L	5 L	B	56, 58, 95, 106		
				III	OXIDIZER, KEEP AWAY FROM FOOD.		152	203	242	2.5L	30L	B	56, 58, 95, 106		
	Oxidizing substances, solid, corrosive, n.o.s.	5.1	UN3085	I	OXIDIZER, CORROSIVE.		None	211	242	1 kg	15 kg	D	13, 34, 56, 58, 69, 106		
				II	OXIDIZER, CORROSIVE.		None	212	242	5 kg	25 kg	B	13, 34, 56, 58, 69, 106		
				III	OXIDIZER, CORROSIVE.		152	213	240	25 kg	100 kg	B	13, 34, 56, 58, 69, 106		
	Oxidizing substances, solid, flammable, n.o.s.	5.1	UN3137		OXIDIZER, FLAMMABLE SOLID.		None	214	214	Forbidden	Forbidden				
	Oxidizing substances, solid, n.o.s.	5.1	UN1479	I	OXIDIZER		152	211	242	1 kg	15 kg	B	56, 58, 69, 106		
				II	OXIDIZER		152	212	240	5 kg	25 kg	D	56, 58, 69, 106		
				III	OXIDIZER		152	213	240	25 kg	100 kg	B	56, 58, 69, 106		
	Oxidizing substances, solid, poisonous, n.o.s.	5.1	UN3087	I	OXIDIZER, POISON		None	211	242	1 kg	15 kg	D	56, 58, 69, 95, 106		
				II	OXIDIZER, POISON		None	212	242	5 kg	25 kg	B	56, 58, 69, 95, 106		
				III	OXIDIZER, KEEP AWAY FROM FOOD.		152	213	240	25 kg	100 kg	B	56, 58, 69, 95, 106		
	Oxidizing substances, solid, self heating, n.o.s.	5.1	UN3100		OXIDIZER, SPONTANEOUSLY COMBUSTIBLE.		None	214	214	Forbidden	Forbidden				
	Oxidizing substances, solid, which in contact with water emit flammable gases, n.o.s.	5.1	UN3121		OXIDIZER, DANGEROUS WHEN WET.		None	214	214	Forbidden	Forbidden				
	Oxygen and carbon dioxide mixtures, see Carbon dioxide and oxygen mixtures.														
	Oxygen, compressed	2.2	UN1072		NONFLAMMABLE GAS, OXIDIZER.		306	302	314, 315	75 kg	150 kg	A			
	Oxygen difluoride	2.3	UN2190	1	POISON GAS, OXIDIZER.		None	304	None	Forbidden	Forbidden	D	13, 40		
	Oxygen, mixtures with rare gases, see Rare gases and oxygen mixtures.														
	Oxygen, refrigerated liquid (*cryogenic liquid*)	2.2	UN1073		NONFLAMMABLE GAS, OXIDIZER.		320	316	318	Forbidden	Forbidden	D			
	Paint *including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base.*	3	UN1263	II	FLAMMABLE LIQUID	B52, T7, T30	150	173	242	5 L	60 L	B			
				III	FLAMMABLE LIQUID	B1, B52, T7, T30.	150	173	242	60 L	220 L	A			
	Paint *or* Paint related material	8	UN3066	II	CORROSIVE	B2, N71, T7	154	202	242	1 L	30 L	A			
				III	CORROSIVE	B52, N71, T7	154	203	241	5 L	60 L	A			
	Paint related material *including paint thinning, drying, removing, or reducing compound.*	3	UN1263	II	FLAMMABLE LIQUID	B52, T7, T30	150	173	242	5 L	60 L	B			
				III	FLAMMABLE LIQUID	B1, B52, T7, T30.	150	173	242	60 L	220 L	A			
	Paper, unsaturated oil treated *incompletely dried (including carbon paper).*	4.2	UN1379	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	Forbidden	Forbidden	A			
	Paraformaldehyde	4.1	UN2213	III	NONE	A1	151	213	240	25 kg	100 kg	A			
	Paraldehyde	3	UN1264	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A			
	Paranitroaniline, solid, see Nitroanilines *etc.*														
D	Parathion	6.1	NA2783	I	POISON	T42	None	201	243	Forbidden	1 L	A	40		
				II	POISON	T14	None	202	243	Forbidden	5 L	A	40		
D	Parathion and compressed gas mixture	2.3	NA1967		POISON GAS	3	None	334	245	Forbidden	Forbidden	E	40		

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Paris green, solid, see Copper acetoarsenite												
D	PCB, *see* Polychlorinated biphenyls												
+	Pentaborane	4.2	UN1380	I	SPONTANEOUSLY COMBUSTIBLE, POISON.	1	None	205	245	Forbidden	Forbidden	D	
	Pentachloroethane	6.1	UN1669	II	POISON	T14	None	202	243	5 L	60 L	A	40
	Pentaerythrite tetranitrate (dry)	Forbidden											
D	Pentaerythrite tetranitrate *or* Pentaerythritol tetranitrate *or* PETN, wetted *with not less than 25 per cent water, by mass, or* Pentaerythrite tetranitrate *or* Pentaerythritol tetranitrate *or* PETN, desensitized *with not less than 15 per cent phlegmatizer by mass.*	1.1A	NA0150	II	EXPLOSIVE 1.1A	111, 117	None	62	None	Forbidden	Forbidden	B	1E, 5E
	Pentaerythrite tetranitrate *or* Pentaerythritol tetranitrate *or* PETN, *with not less than 7 per cent wax by mass.*	1.1D	UN0411	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Pentaerythritol tetranitrate, *see* Pentaerythrite tetranitrate, *etc.*												
	Pentamethylheptane	3	UN2286	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Pentan-2,4-Dione	3	UN2310	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	n-Pentanes *or* isopentane	3	UN1265	I	FLAMMABLE LIQUID	T20	150	201	243	1 L	30 L	E	
	Pentanitroaniline (dry)	Forbidden											
	1-Pentol	8	UN2705	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	B	38
	Pentolite, *dry or wetted with less than 15 per cent water, by mass.*	1.1D	UN0151	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Perchlorates, inorganic, n.o.s.	5.1	UN1481	II	OXIDIZER		152	212	242	5 kg	25 kg	A	46, 56
	Perchloric acid, more than 72 per cent acid by mass.	Forbidden											
	Perchloric acid *more than 50 per cent but not more than 72 per cent acid, by mass:*	5.1	UN1873	I	OXIDIZER, CORROSIVE.	A2, A3, N41, T9, T27.	None	201	243	Forbidden	2.5 L	D	56
	Perchloric acid *not more than 50 per cent acid by mass.*	8	UN1802	II	CORROSIVE, OXIDIZER.	N41, T9	None	202	243	Forbidden	30 L	C	56, 89
	Perchloroethylene, see Tetrachloroethylene												
	Perchloromethylmercaptan	6.1	UN1670	I	POISON	2, A3, A7, B9, B14, B32, B74, N34, T38, T43, T45.	None	227	244	Forbidden	30 L	D	40
	Perchloryl fluoride	2.3	UN3083		POISON GAS, OXIDIZER.	3, B12, B14	None	302	314, 315	Forbidden	Forbidden	D	40, 43, 95
	Percussion caps, see Primers, cap type												
	Perfluoro-2-butene, see Octafluorobut-2-ene												
	Perfluoroethylvinyl ether	2.1	UN3154		FLAMMABLE GAS		306	302, 304, 305	314, 315	Forbidden	150 kg	E	40
	Perfluoromethylvinyl ether	2.1	UN3153		FLAMMABLE GAS		306	302, 304, 305	314, 315	Forbidden	150 kg	E	40
	Perfumery products *with flammable solvents*	3	UN1266	II	FLAMMABLE LIQUID	T7, T30	150	202	242	10 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Permanganates, inorganic, n.o.s. (*except ammonium permanganate, the transport of which is prohibited except when approved by the Associate Administrator for Hazardous Materials Safety,y the competent authorities*).	5.1	UN1482	II	OXIDIZER	A30	152	212	242	5 kg	25 kg	D	56, 58, 69, 106, 107

	Peroxides, inorganic, n.o.s.	5.1	UN1483	II	OXIDIZER	A7, A20, N34	None	212	242	5 kg	25 kg	A	13, 75, 106
	Peroxyacetic acid, more than 43 per cent and with more than 6 per cent hydrogen peroxide.	Forbidden											
	Pesticides, liquid, flammable, toxic, n.o.s. (flashpoint less than 23 degrees C).	3	UN3021	I	FLAMMABLE LIQUID, POISON.	B5	None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN2903	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	242	60 L	220 L	A	40
	Pesticides, liquid, toxic, n.o.s.	6.1	UN2902	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Pesticides, solid, toxic, n.o.s.	6.1	UN2588	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	PETN, *see* Pentaerythrite tetranitrate												
	PETN/TNT, *see* Pentolite, *etc.*												
	Petrol, *see* Gasoline												
	Petroleum crude oil	3	UN1267	I	FLAMMABLE LIQUID	T8, T31	None	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Petroleum distillates, n.o.s.	3	UN1268	I	FLAMMABLE LIQUID	T8, T31	150	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Petroleum ether, see Petroleum spirit												
	Petroleum gases, liquefied *or* Liquefied petroleum gas.	2.1	UN1075		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	E	40
	Petroleum naphtha, see Naphtha, *petroleum*												
	Petroleum oil	3	UN1270	I	FLAMMABLE LIQUID	T8, T31	None	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Petroleum spirit	3	UN1271	I	FLAMMABLE LIQUID	T8	150	201	243	1 L	30 L	E	
				II	FLAMMABLE LIQUID	B1, T8	150	202	242	5 L	60 L	B	
	Phenacyl bromide	6.1	UN2645	II	POISON		None	212	242	25 kg	100 kg	B	40, 48
	Phenetidines	6.1	UN2311	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	Phenol, molten	6.1	UN2312	II	POISON	B14, T8	None	202	243	Forbidden	Forbidden	B	40
+	Phenol, solid	6.1	UN1671	II	POISON	N78, T14	None	212	240	25 kg	100 kg	A	
	Phenol solutions	6.1	UN2821	II	POISON	T14	None	202	243	5 L	60 L	A	
	Phenolsulfonic acid, liquid	8	UN1803	II	CORROSIVE	B2, N41, T8	154	202	242	1 L	30 L	C	14
	Phenoxy pesticides, liquid, flammable, toxic n.o.s., *flash point less than 23 degrees C.*	3	UN2766	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Phenoxy pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN2999	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	242	60 L	220 L	A	40
	Phenoxy pesticides, liquid, toxic, n.o.s.	6.1	UN3000	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Phenoxy pesticides, solid, toxic, n.o.s.	6.1	UN2765	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
+	Phenyl isocyanate	6.1	UN2487	II	POISON	2, A3, B9, B14, B32, B74, B77, N33, N34, T38, T43, T45.	None	227	244	5 L	60 L	D	40
+	Phenyl mercaptan	6.1	UN2337	II	POISON, FLAMMABLE LIQUID.	2, B9, B14, B32, B74, B77, T38, T43, T45.	None	227	244	5 L	60 L	B	26, 40
	Phenyl phosphorus dichloride	8	UN2798	II	CORROSIVE	B2, B15, T8, T26.	154	202	242	Forbidden	30 L	B	40
	Phenyl phosphorus thiodichloride	8	UN2799	II	CORROSIVE	B2, B15, T8, T26.	154	202	242	Forbidden	30 L	B	40
	Phenyl urea pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2768	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	242	1 L	60 L	B	
	Phenyl urea pesticides, liquid, toxic, flammable, n.o.s., *flash point not less than 23 degrees C.*	6.1	UN3001	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	242	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	242	60 L	220 L	A	40
	Phenyl urea pesticides, liquid, toxic, n.o.s.	6.1	UN3002	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	242	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Phenyl urea pesticides, solid, toxic, n.o.s.	6.1	UN2767	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Phenylacetonitrile, liquid	6.1	UN2470	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	A	26
	Phenylacetyl chloride	8	UN2577	II	CORROSIVE	B2, T8, T26	154	202	242	1 L	30 L	C	40
	Phenylcarbylamine chloride	6.1	UN1672	I	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	40
	Phenylchloroformate	6.1	UN2746	II	POISON, CORROSIVE.	T12	None	202	243	1 L	30 L	A	12, 13, 25, 40, 48
	m-Phenylene diamine diperchlorate (dry)	Forbidden											
	Phenylenediamines (*o-, m-, p-*)	6.1	UN1673	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	108
	Phenylhydrazine	6.1	UN2572	II	POISON	T8	None	202	243	5 L	60 L	A	40
	Phenylmercuric acetate	6.1	UN1674	II	POISON		None	212	242	25 kg	100 kg	A	
	Phenylmercuric compounds, n.o.s.	6.1	UN2026	I	POISON		None	211	242	5 kg	50 kg	A	
				II	POISON		None	212	242	25 kg	100 kg	A	
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Phenylmercuric hydroxide	6.1	UN1894	II	POISON		None	212	242	25 kg	100 kg	A	
	Phenylmercuric nitrate	6.1	UN1895	II	POISON		None	212	242	25 kg	100 kg	A	
	Phenyltrichlorosilane	8	UN1804	II	CORROSIVE	A7, B6, N34, T8.	None	202	242	Forbidden	30 L	C	40

	Phosgene	2.3	UN1076		POISON GAS, CORROSIVE.	1, B7, B46	None	192	314	Forbidden	Forbidden	D	40
	9-Phosphabicyclononanes *or* Cyclooctadiene phosphines.	4.2	UN2940	II	SPONTANEOUSLY COMBUSTIBLE.	A19	None	212	241	15 kg	50 kg	A	
	Phosphine	2.3	UN2199		POISON GAS, FLAMMABLE GAS.	1	None	192	245	Forbidden	Forbidden	D	40
	Phosphoric acid	8	UN1805	III	CORROSIVE	A7, N34, T7	154	203	241	5 L	60 L	A	
	Phosphoric acid triethyleneimine, see Tri-(1-aziridyl) phosphine oxide, solution.												
	Phosphoric anhydride, see Phosphorus pentoxide												
	Phosphorous acid, ortho	8	UN2834	III	CORROSIVE	T7	154	213	240	25 kg	100 kg	A	48
	Phosphorus, amorphous	4.1	UN1338	III	FLAMMABLE SOLID	A1, A19, B1, B9, B12, B26.	None	213	243	25 kg	100 kg	A	74
	Phosphorus bromide, see Phosphorus tribromide												
	Phosphorus chloride, see Phosphorus trichloride												
	Phosphorus heptasulfide, *free from yellow or white phosphorus.*	4.1	UN1339	II	FLAMMABLE SOLID	A20, N34	None	212	240	15 kg	50 kg	B	74
	Phosphorus oxybromide	8	UN1939	II	CORROSIVE	B6, N41, N43	None	212	240	Forbidden	50 kg	C	12, 40, 48
	Phosphorus oxybromide, molten	8	UN2576	II	CORROSIVE	B2, B8, N41, N43, T8, T27.	None	202	242	Forbidden	Forbidden	C	40
+	Phosphorus oxychloride	8	UN1810	II	CORROSIVE, POISON.	2, A7, B9, B14, B32, B74, B77, N34, T38, T43, T45.	None	227	244	Forbidden	30 L	C	8, 40
	Phosphorus pentabromide	8	UN2691	II	CORROSIVE	A7, N34	154	202	240	Forbidden	50 kg	B	12, 40, 48
	Phosphorus pentachloride	8	UN1806	II	CORROSIVE	A7, N34	None	202	240	Forbidden	50 kg	C	40
	Phosphorus pentafluoride	2.3	UN2198		POISON GAS	1	None	302	None	Forbidden	Forbidden	D	40
	Phosphorus pentasulfide, *free from yellow or white phosphorus.*	4.3	UN1340	II	DANGEROUS WHEN WET.	A20, B59	None	212	243	15 kg	50 kg	B	74
	Phosphorus pentoxide	8	UN1807	II	CORROSIVE	A7, N34	154	212	240	15 kg	50 kg	A	10
	Phosphorus sesquisulfide, *free from yellow or white phosphorus.*	4.1	UN1341	II	FLAMMABLE SOLID	A20, N34	None	212	240	15 kg	50 kg	B	74
	Phosphorus tribromide	8	UN1808	II	CORROSIVE	A3, A6, A7, B2, B25, N34, N43, T8.	None	202	242	Forbidden	30 L	C	8, 40
+	Phosphorus trichloride	8	UN1809	II	CORROSIVE, POISON.	2, A3, A7, B9, B14, B15, B32, B74, B77, N34, T38, T43, T45.	None	227	244	Forbidden	30L	C	8, 40
	Phosphorus trioxide	8	UN2578	III	CORROSIVE		154	213	241	25 kg	100 kg	A	12, 48
	Phosphorus trisulfide, *free from yellow or white phosphorus.*	4.1	UN1343	II	FLAMMABLE SOLID	A20, N34	None	212	240	15 kg	50 kg	B	74
	Phosphorus white, molten	4.2	UN2447	I	SPONTANEOUSLY COMBUSTIBLE, POISON.	B9, B12, B26, N34, T15, T26, T29.	None	186	243	Forbidden	Forbidden	D	
	Phosphorus (white or red) and a chlorate, mixtures of.	Forbidden											
	Phosphorus, white *or* yellow dry *or* under water *or* in solution.	4.2	UN1381	I	SPONTANEOUSLY COMBUSTIBLE, POISON.	B9, B12, B26, N34, T15, T26, T39.	None	186	243	Forbidden	Forbidden	E	
	Phosphoryl chloride, see Phosphorus oxychloride												
	Phthalic anhydride *with more than .05 per cent maleic anhydride.*	8	UN2214	III	CORROSIVE	T7	154	213	240	25 kg	100 kg	A	
	Phthalimida derivative pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2774	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Phthalimide derivative pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3007	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	T14	153	203	242	60 L	220 L	A	40
	Phthalimide derivative pesticides, liquid, toxic, n.o.s.	6.1	UN3008	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40

§ 172.101 Hazardous Materials Table—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(6) Packaging authorizations (§ 173.***)			(8) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Phthalimide derivative pesticides, solid, toxic, n.o.s.	6.1	UN2773	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Picolines	3	UN2313	III	FLAMMABLE LIQUID	B1, T8	150	202	242	5 L	60 L	A	40
	Picric acid, *see* Trinitrophenol, *etc.*												
D	Picric acid, wet, with not less than 10% water	4.1	NA1344	I	FLAMMABLE SOLID	A19, A20, N41	None	211	None	Forbidden	Forbidden	D	
	Picrite, *see* Nitroguanidine, *etc.*												
	Picryl chloride, *see* Trinitrochlorobenzene												
	Pine oil	3	UN1272	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	alpha-Pinene	3	UN2368	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Piperazine	8	UN2579	III	CORROSIVE	T7	154	213	240	25 kg	100 kg	A	12, 48
	Piperidine	3	UN2401	II	FLAMMABLE LIQUID	T2	150	202	242	5 L	60 L	B	
	Pivaloyl chloride, see Trimethyl acetyl chloride												
A	Plastic molding material *in dough, sheet or extruded rope form.*	9		III	CLASS 9		155	213	None	100 kg	200 kg	A	
	Plastic solvent, n.o.s., see Flammable liquids, n.o.s.												
	Plastics, nitrocellulose based, spontaneously combustible, n.o.s.	4.2	UN2006	III	SPONTANEOUSLY COMBUSTIBLE.		None	213	None	Forbidden	Forbidden	C	
	Poisonous gases, n.o.s., see Compressed or liquefied gases, flammable or toxic, n.o.s.												
	Poisonous liquids, corrosive, n.o.s.	6.1	UN2927	I	POISON, CORROSIVE.	T42	None	201	243	0.5 L	2.5 L	B	40
				II	POISON, CORROSIVE.		None	202	243	1 L	30 L	B	40
	Poisonous liquids, corrosive, n.o.s., *inhalation hazard, Packing Group I, Zone A.*	6.1	UN2927	I	POISON, CORROSIVE.	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	Forbidden	D	20, 40, 95
	Poisonous liquids, corrosive, n.o.s., *inhalation hazard, Packing Group I, Zone B.*	6.1	UN2927	I	POISON, CORROSIVE.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	20, 40, 95
	Poisonous liquids, flammable, n.o.s.	6.1	UN2929	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T15	None	202	243	5 L	60 L	B	40
	Poisonous liquids, flammable, n.o.s., *inhalation hazard, Packing Group I, Zone A.*	6.1	UN2929	I	POISON, FLAMMABLE LIQUID.	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	Forbidden	D	20, 40, 95
	Poisonous liquids, flammable, n.o.s., *inhalation hazard, Packing Group I, Zone B.*	6.1	UN2929	I	POISON, FLAMMABLE LIQUID.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	20, 40, 95
	Poisonous liquids, n.o.s.	6.1	UN2810	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	40
	Poisonous liquids, n.o.s. *inhalation hazard, Packing Group I, Zone A.*	6.1	UN2810	I	POISON	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	Forbidden	D	20, 40, 95
	Poisonous liquids, n.o.s. *inhalation hazard, Packing Group I, Zone B.*	6.1	UN2810	I	POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	D	20, 40, 95
	Poisonous liquids, oxidizing, n.o.s.	6.1	UN3122	I	POISON, OXIDIZER	A4	None	201	243	Forbidden	2.5 L	C	89

				II	POISON, OXIDIZER		None	202	243	1 L	5 L	C	89
	Poisonous liquids, oxidizing, n.o.s. *Inhalation hazard, packing group I, Zone A.*	6.1	UN3122	I	POISON, OXIDIZER	1, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	2.5 L	C	89
	Poisonous liquids, oxidizing, n.o.s. *Inhalation Hazard, Packing Group I, Zone B.*	6.1	UN3122	I	POISON, OXIDIZER	2, B9, B14, B32, T38, T43, T45.	None	227	244	Forbidden	Forbidden	C	89
	Poisonous liquids which in contact with water emit flammable gases, n.o.s.	6.1	UN3123	I	POISON, DANGEROUS WHEN WET.	A4	None	201	243	Forbidden	1 L	E	
				II	POISON, DANGEROUS WHEN WET.		None	202	243	1 L	5 L	E	
	Poisonous solids, corrosive, n.o.s.	6.1	UN2928	I	POISON, CORROSIVE.		None	211	242	1 kg	25 kg	B	40
				II	POISON, CORROSIVE.		None	212	242	15 kg	50 kg	B	40
	Poisonous solids, flammable, n.o.s.	6.1	UN2930	I	POISON, FLAMMABLE SOLID.		None	211	242	1 kg	15 kg	B	
				II	POISON, FLAMMABLE SOLID.		None	212	242	15 kg	50 kg	B	
	Poisonous solids, n.o.s.	6.1	UN2811	I	POISON		None	211	242	5 kg	50 kg	B	
				II	POISON		None	212	242	25 kg	100 kg	B	
		6		III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Poisonous solids, oxidizing, n.o.s.	6.1	UN3086	I	POISON, OXIDIZER		None	211	242	1 kg	15 kg	C	89
				II	POISON, OXIDIZER		None	212	242	15 kg	50 kg	C	89
	Poisonous, solids, self heating, n.o.s.	6.1	UN3124	I	POISON, SPONTANEOUSLY COMBUSTIBLE.	A5	None	211	241	5 kg	15 kg	C	
				II	POISON, SPONTANEOUSLY COMBUSTIBLE.		None	212	242	15 kg	50 kg	C	
	Poisonous, solids, which in contact with water emit flammable gases, n.o.s.	6.1	UN3125	I	POISON, DANGEROUS WHEN WET.	A5	None	211	241	5 kg	15 kg	E	
				II	POISON, DANGEROUS WHEN WET.		None	212	242	15 kg	50 kg	E	
	Polyalkylamines, n.o.s., *see* Alkylamines, *etc.*												
AW	Polychlorinated biphenyls	9	UN2315	II	CLASS 9	9, N81	155	202	241	100 L	220 L	A	34
D	Polyester resin kits	5.2	NA2255	II	ORGANIC PEROXIDE.		None	225	246	5 kg	5 kg	D	
	Polyhalogenated biphenyls, liquid *or* Polyhalogenated terphenyls liquid.	9	UN3151	II	CLASS 9		155	204	241	100 L	220 L	A	34
	Polyhalogenated biphenyls, solid *or* Polyhalogenated terphenyls, solid.	9	UN3152	II	CLASS 9		155	204	241	100 kg	200 kg	A	34
	Polystyrene beads, expandable, *evolving flammable vapor.*	9	UN2211	III	None		221	221	240	100 kg	200 kg	A	85, 87
	Potassium	4.3	UN2257	II	DANGEROUS WHEN WET.	A19, A20, B27, N6, N34, T15, T26.	None	212	244	Forbidden	50 kg	D	
	Potassium arsenate	6.1	UN1677	II	POISON		None	212	242	25 kg	100 kg	A	
	Potassium arsenite	6.1	UN1678	II	POISON		None	212	242	25 kg	100 kg	A	
	Potassium bifluoride, *solid*	8	UN1811	II	CORROSIVE, POISON.	N3, N34, T8	154	212	242	15 kg	50 kg	A	25, 26, 40, 85
	Potassium bifluoride, *solution*	8	UN1811	II	CORROSIVE, POISON.	N3, N34, T8	154	202	242	1 L	30 L	A	26, 40, 95
	Potassium bisulfite solution, *see* Bisulfites, inorganic, aqueous solutions, n.o.s.												
	Potassium borohydride	4.3	UN1870	I	DANGEROUS WHEN WET.	A19, N40	None	211	242	Forbidden	15 kg	E	
	Potassium bromate	5.1	UN1484	II	OXIDIZER		152	212	242	5 kg	25 kg	A	56, 58, 106
	Potassium carbonyl	Forbidden											

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or rail car	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Potassium chlorate	5.1	UN1485	II	OXIDIZER	A9, N34	152	212	242	5 kg	25 kg	A	56, 58, 106
	Potassium chlorate mixed with mineral oil, see Explosive, blasting, type C.												
	Potassium chlorate, solution	5.1	UN2427	II	OXIDIZER	A2, T8	152	202	241	1 L	5 L	B	56, 58, 106
	Potassium cuprocyanide	6.1	UN1679	II	POISON		None	212	242	25 kg	100 kg	A	26
	Potassium cyanide	6.1	UN1680	I	POISON	B69, B77, N74, N75, T18, T26.	None	211	242	5 kg	50 kg	B	52
	Potassium dichloro isocyanurate or Potassium dichloro-s-triazinetrione, see Dichloroisocyanuric acid, dry or Dichloroisocyanuric acid salts *etc.*												
	Potassium dithionite or Potassium hydrosulfite	4.2	UN1929	II	SPONTANEOUSLY COMBUSTIBLE.	A8, A19, A20	None	212	241	15 kg	50 kg	E	13
	Potassium fluoride	6.1	UN1812	III	KEEP AWAY FROM FOOD.	T6	153	213	240	100 kg	200 kg	A	26
	Potassium fluoroacetate	6.1	UN2628	I	POISON		None	211	242	5 kg	50 kg	E	
	Potassium fluorosilicate	6.1	UN2655	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	26
	Potassium hydrate, see Potassium hydroxide, solid												
	Potassium hydrogen fluoride, see Potassium bifluoride.												
	Potassium hydrogen fluoride solution, see Corrosive liquid, n.o.s.												
	Potassium hydrogen sulfate	8	UN2509	II	CORROSIVE	A7, N34	154	212	240	15 kg	50 kg	A	
	Potassium hydrosulfite, see Potassium dithionite												
	Potassium hydroxide, liquid, see Potassium hydroxide solution.												
	Potassium hydroxide, solid	8	UN1813	II	CORROSIVE		154	212	240	15 kg	50 kg	A	
	Potassium hydroxide, solution	8	UN1814	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	
	Potassium hypochlorite, solution, see Hypochlorite solutions, *etc.*												
	Potassium, metal alloys	4.3	UN1420	I	DANGEROUS WHEN WET.	A19, A20, B27	None	212	244	Forbidden	50 kg	D	
	Potassium metal, liquid alloy, see Alkali metal alloys, liquid.												
	Potassium metavanadate	6.1	UN2864	II	POISON		None	212	242	25 kg	100 kg	A	
	Potassium monoxide	8	UN2033	II	CORROSIVE		154	212	240	15 kg	50 kg	A	
	Potassium nitrate	5.1	UN1486	III	OXIDIZER	A1, A29	152	212	240	25 kg	100 kg	A	
	Potassium nitrate and sodium nitrite mixtures	5.1	UN1487	II	OXIDIZER	B12, B78	152	212	240	5 kg	25 kg	A	56, 58
	Potassium nitrite	5.1	UN1488	II	OXIDIZER		152	212	242	5 kg	25 kg	A	56, 58
	Potassium perchlorate, solid *or* solution	5.1	UN1489	II	OXIDIZER	T8	152	212	242	5 kg	25 kg	A	56, 58, 106
	Potassium permanganate	5.1	UN1490	II	OXIDIZER	B12	152	212	242	5 kg	25 kg	D	56, 58, 69, 106, 107
	Potassium peroxide	5.1	UN1491	I	OXIDIZER	A20, N34	None	211	None	Forbidden	15 kg	B	13, 75, 106
	Potassium persulfate	5.1	UN1492	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	
	Potassium phosphide	4.3	UN2012	I	DANGEROUS WHEN WET, POISON.	A19, N40	None	211	None	Forbidden	15 kg	E	40, 85
	Potassium salts of aromatic nitro-derivatives, *explosive.*	1.3C	UN0159	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Potassium selenate, *see* Selenates *or* Selenites												

	Potassium selenite, *see* Selenates *or* Selenites													
	Potassium sodium alloys	4.3	UN1422	I	DANGEROUS WHEN WET.	A19, B27, N34, N40, T15, T26.	None	201	244	Forbidden	15 kg	D		
	Potassium sulfide, anhydrous *or* Potassium sulfide *with less than 30 per cent water of crystallization.*	4.2	UN1382	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, B16, N34.	None	212	241	15 kg	50 kg	A		
	Potassium sulfide, hydrated *with not less than 30 per cent water of crystallization.*	8	UN1847	II	CORROSIVE		154	212	240	15 kg	50 kg	A	26	
	Potassium superoxide	5.1	UN2466	I	OXIDIZER	A20	None	211	None	Forbidden	15 kg	B	13, 75, 106	
	Powder cake, wetted *or* Powder paste, wetted *with not less than 25 per cent water, by mass.*	1.3C	UN0159	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E	
	Powder cake, wetted *or* Powder paste, wetted *with not less than 17 percent alcohol by mass.*	1.1C	UN0433	II	EXPLOSIVE 1.1C		None	62	None	Forbidden	Forbidden	B	1E, 5E	
	Powder paste, *see* Powder cake, *etc.*													
	Powder, smokeless	1.1C	UN0160	II	EXPLOSIVE 1.1C		None	62	None	Forbidden	Forbidden	B	10E, 26E	
	Powder, smokeless	1.3C	UN0161	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	10E, 26E	
	Power device, explosive, see Cartridges, power device.													
	Primers, cap type	1.4S	UN0044	II	None		None	62	None	25 kg	100 kg	A	9E	
	Primers, cap type	1.1B	UN0377	II	EXPLOSIVE 1.1B		None	62	None	Forbidden	Forbidden	B	2E, 6E	
	Primers, cap type	1.4B	UN0378	II	EXPLOSIVE 1.4B		None	62	None	Forbidden	75 kg	B		
	Primers, small arms, see Primers, cap type													
	Primers, tubular	1.3G	UN0319	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	Forbidden	B		
	Primers, tubular	1.4G	UN0320	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E	
	Primers, tubular	1.4S	UN0376	II	None		None	62	None	25 kg	100 kg	A	9E	
	Projectiles, illuminating, see Ammunition, illuminating, *etc.*													
	Projectiles, *inert with tracer*	1.4S	UN0345	II	EXPLOSIVE 1.4S		63(b)	62	None	25 kg	100 kg	A	3E, 7E, 9E	
	Projectiles, *inert, with tracer*	1.3G	UN0424	II	EXPLOSIVE 1.3G		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E	
	Projectiles, *inert, with tracer*	1.4G	UN0425	II	EXPLOSIVE 1.4G		63(b)	62	None	Forbidden	75 kg	A	3E, 7E, 24E	
	Projectiles, *with burster or expelling charge*	1.2D	UN0346	II	EXPLOSIVE 1.2D		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E	
	Projectiles, *with burster or expelling charge*	1.4D	UN0347	II	EXPLOSIVE 1.4D		63(b)	62	None	Forbidden	75 kg	A	3E, 7E, 24E	
	Projectiles, *with burster or expelling charge*	1.2F	UN0426	II	EXPLOSIVE 1.2F		63(b)	62	None	Forbidden	Forbidden	E		
	Projectiles, *with burster or expelling charge*	1.4F	UN0427	II	EXPLOSIVE 1.4F		63(b)	62	None	Forbidden	Forbidden	E		
	Projectiles, *with burster or expelling charge*	1.2G	UN0434	II	EXPLOSIVE 1.2G		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E	
	Projectiles, *with burster or expelling charge*	1.4G	UN0435	II	EXPLOSIVE 1.4G		63(b)	62	None	Forbidden	75 kg	A	3E, 7E, 24E	
	Projectiles, *with bursting charge*	1.1F	UN0167	II	EXPLOSIVE 1.1F		63(b)	62	None	Forbidden	Forbidden	E		
	Projectiles, *with bursting charge*	1.1D	UN0168	II	EXPLOSIVE 1.1D		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E	
	Projectiles, *with bursting charge*	1.2D	UN0169	II	EXPLOSIVE 1.2D		63(b)	62	None	Forbidden	Forbidden	B	3E, 7E	
	Projectiles, *with bursting charge*	1.2F	UN0324	II	EXPLOSIVE 1.2F		63(b)	62	None	Forbidden	Forbidden	E		
	Projectiles, *with bursting charge*	1.4D	UN0344	II	EXPLOSIVE 1.4D		63(b)	62	None	Forbidden	75 kg	A	3E, 7E, 24E	
	Propadiene, inhibited	2.1	UN2200		FLAMMABLE GAS		None	304	314, 315	Forbidden	150 kg	B	40	
	Propadiene mixed with methyl acetylene, see Methyl acetylene and propadiene mixtures, stabilized.													
	Propane *see also* Petroleum gases, liquefied	2.1	UN1978		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	E	40	
	Propanethiols	3	UN2402	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	E	95, 102	
	n-Propanol *or* Propyl alcohol normal	3	UN1274	II	FLAMMABLE LIQUID	B1, T1	150	202	242	5 L	60 L	B		
D	Propargyl alcohol	3	NA1986	II	FLAMMABLE LIQUID, POISON.		None	202	243	Forbidden	1 L	B	40	
D	Propellant explosive, liquid	1.1C	NA0474	II	EXPLOSIVE 1.1C		None	62	None	Forbidden	Forbidden	B	1E, 5E	
D	Propellant explosive, liquid	1.3C	NA0477	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E	
D	Propellant explosive, solid	1.1C	NA0273	II	EXPLOSIVE 1.1C		None	62	None	Forbidden	5 kg	B		
D	Propellant explosive, solid	1.3C	NA0274	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	5 kg	B		
	Propionaldehyde	3	UN1275	II	FLAMMABLE LIQUID	T14	150	202	242	5 L	60 L	E		
	Propionic acid	8	UN1848	III	CORROSIVE	T7	154	203	241	5 L	60 L	A	22, 48	
	Propionic anhydride	8	UN2496	III	CORROSIVE	T2	154	203	241	5 L	60 L	A	8	
	Propionitrile	3	UN2404	II	FLAMMABLE LIQUID, POISON.	T14	None	201	243	Forbidden	60 L	E	40	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Propionyl chloride	8	UN1815	II	FLAMMABLE LIQUID, CORROSIVE.	T8, T26	None	202	243	1 L	5 L	B	40
	n-Propyl acetate	3	UN1276	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	B	
	Propyl alcohol, *see* Propanol												
	n-Propyl benzene	3	UN2364	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	A	
	Propyl chloride	3	UN1278	II	FLAMMABLE LIQUID.	N34, T14	None	202	242	Forbidden	60 L	E	
	n-Propyl chloroformate	6.1	UN2740	I	POISON, FLAMMABLE LIQUID, CORROSIVE.	2, A3, A6, A7, B9, B14, B32, B74, B77, N34, T38, T43, T45.	None	227	244	Forbidden	2.5 L	B	21, 40, 48, 100
	Propyl formates	3	UN1281	II	FLAMMABLE LIQUID.	T8	150	202	242	5 L	60 L	B	
+	n-Propyl isocyanate	3	UN2482	I	FLAMMABLE LIQUID, POISON.	1, A7, B9, B14, B30, B72, T38, T43, T44.	None	226	244	Forbidden	30 L	D	40
	Propyl mercaptan, see Propanethiols												
	n-Propyl nitrate	3	UN1865	II	FLAMMABLE LIQUID.	T25	150	202	None	5 L	60 L	D	
	Propylamine	3	UN1277	II	FLAMMABLE LIQUID, CORROSIVE.	N34, T14	None	202	242	5 L	60 L	E	40
	Propylene *see also* Petroleum gases, liquefied	2.1	UN1077		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	E	40
	Propylene chlorohydrin	6.1	UN2611	II	POISON	T9	None	202	243	5 L	60 L	A	12, 40, 48
	Propylene dichloride	3	UN1279	II	FLAMMABLE LIQUID.	N36, T1	150	202	242	5 L	60 L	B	
	Propylene oxide	3	UN1280	I	FLAMMABLE LIQUID.	A3, N34, T20, T29.	None	201	243	1 L	30 L	E	40
	Propylene tetramer	3	UN2850	III	FLAMMABLE LIQUID.	B1, T1	150	203	242	60 L	220 L	A	
	1,2-Propylenediamine	8	UN2258	III	CORROSIVE	A3, A6, N34, T6.	None	203	243	1 L	30 L	A	12, 20, 40, 48
	Propylenimine, inhibited	3	UN1921	I	FLAMMABLE LIQUID.	A3, N34, T25	None	201	243	1 L	30 L	B	40
	Propyltrichlorosilane	8	UN1816	II	CORROSIVE	A7, B2, B6, N34, T8, T26.	None	202	242	Forbidden	30 L	C	12, 21, 40, 48
	Prussic acid, see Hydrogen cyanide												
	Pyridine	3	UN1282	II	FLAMMABLE LIQUID, POISON.	T8	None	202	243	1 L	60 L	B	21, 100
	Pyridine perchlorate	Forbidden											
	Pyrophoric liquids, n.o.s.	4.2	UN2845	I	SPONTANEOUSLY COMBUSTIBLE.	B11, T42	None	181	244	Forbidden	Forbidden	D	18
	Pyrophoric metals, n.o.s., *or* Pyrophoric alloys, n.o.s.	4.2	UN1383	I	SPONTANEOUSLY COMBUSTIBLE.	B11	None	187	242	Forbidden	Forbidden	D	
	Pyrophoric solids, n.o.s.	4.2	UN2846	I	SPONTANEOUSLY COMBUSTIBLE.		None	187	242	Forbidden	Forbidden	D	
	Pyrosulfuryl chloride	8	UN1817	II	CORROSIVE	B2, T9, T27	154	202	242	1 L	30 L	C	8, 40
	Pyroxylin solution or solvent, see Nitrocellulose												
	Pyrrolidine	3	UN1922	II	FLAMMABLE LIQUID.	T1	150	202	242	5 L	60 L	B	40
	Quebrachitol pentanitrate	Forbidden											
	Quicklime, see Calcium oxide												
	Quinoline	6.1	UN2656	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	A	12, 48
	R 114, see Dichlorotetrafluoroethane												
	R 115, see Chloropentafluoroethane												
	R 116, see Hexafluoroethane												
	R 124, see Chlorotetrafluoroethane												
	R 133a, see Chlorotrifluoroethane												

	R 152a, see Difluoroethane													
	R 500, see Dichlorodifluoromethane and difluoroethane, *etc.*.													
	R 502, see Chlorodifluoromethane and chloropentafluoroethane mixture, *etc.*.													
	R 503, see Chlorotrifluoromethane and trifluoromethane, *etc.*.													
	R 12, see Dichlorodifluoromethane													
	R 12B1, see Chlorodifluorobromomethane													
	R 13, see Chlorotrifluoromethane													
	R 13B1, see Bromotrifluoromethane													
	R 14, see Tetrafluoromethane													
	R 21, see Dichlorofluoromethane													
	R 22, see Chlorodifluoromethane													
	Radioactive material, excepted package-articles manufactured from natural *or* depleted uranium *or* natural thorium.	7	UN2910		None		421-1, 424	421-1, 424	421-1, 424			A		
	Radioactive material, excepted package-empty packaging.	7	UN2910		EMPTY		427	427	427			A		
	Radioactive material, excepted package-instruments *or* articles.	7	UN2910		None		421-1, 422	421-1, 422	421-1, 422			A		
	Radioactive material, excepted package-limited quantity of material.	7	UN2910		None		421, 421-1	421, 421-1	421, 421-1			A		
	Radioactive material, fissile, n.o.s.	7	UN2918		RADIOACTIVE		453	417	417			A		40, 95
	Radioactive material, low specific activity *LSA*, n.o.s..	7	UN2912		RADIOACTIVE		421, 422, 424	425	425			A		
	Radioactive material, n.o.s.	7	UN2982		RADIOACTIVE		421, 422, 424	415, 416	415, 416			A		40, 95
	Radioactive material, special form, n.o.s.	7	UN2974		*RADIOACTIVE*		421, 422	415, 416	415, 416			A		
	Railway torpedo, see Signals, railway track, explosive.													
	Rare gases and nitrogen mixtures	2.2	UN1981		NONFLAMMABLE GAS.		306	302	None	75 kg	150 kg	A		
	Rare gases and oxygen mixtures	2.2	UN1980		NONFLAMMABLE GAS.		306	302	None	75 kg	150 kg	A		
	Rare gases, mixtures	2.2	UN1979		NONFLAMMABLE GAS.		306	302	None	75 kg	150 kg	A		
	RC 318, see Octafluorocyclobutane													
	RDX and cyclotetramethylenetetranitramine, wetted *or* desensitized *see* RDX and HMX mixtures, wetted or desensitized.													
	RDX and HMX mixtures, wetted *with not less than 15 percent water by mass or* RDX and HMX mixtures, desensitized *with not less than 10 percent phlegmatizer by mass.*	1.1D	UN0391	II	EXPLOSIVE 1,1D		None	62	None	Forbidden	Forbidden	B		1E, 5E
	RDX and Octogen mixtures, wetted *or* desensitized *see* RDX and HMX mixtures, wetted *or* desensitized *etc.*.													
	RDX and Octogen mixtures, wetted *or* desensitized *see* RDX and HMX mixtures, wetted *or* desensitized *etc.*.													
	RDX, see Cyclotrimethylene trinitramine, etc.													
	Receptacles, small, containing gas *flammable, without release device, not refillable and not exceeding 1 L capacity.*	2.1	UN2037		FLAMMABLE GAS		306	304	None	1 kg	15 kg	B		40
	Receptacles, small, containing gas *nonflammable, without release device, not refillable and not exceeding 1 L capacity.*	2.2	UN2037		NONFLAMMABLE GAS.		306	304	None	1 kg	15 kg	B		40
	Red phosphorus, see Phosphorus, amorphous													
	Refrigerant gases, n.o.s.	2.2	UN1078		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A		
D	Refrigerant gases, n.o.s. *or* Dispersant gases, n.o.s.	2.1	NA1954		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	C		40

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.**)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
D	Refrigerating machine	3	NA1993	III	FLAMMABLE LIQUID		174	174	None	10 L	10 L	A	
D	Refrigerating machines, *containing flammable, non-poisonous, liquefied gas.*	2.1	NA1954		FLAMMABLE GAS		306	306	306	Forbidden	25 kg	C	40
	Refrigerating machines, *containing non-flammable, non-poisonous, liquefied gas.*	2.2	UN2857		NONFLAMMABLE GAS.		306, 307	306	306, 307	Forbidden	450 kg	A	
D	Regulated medical waste	6.2	NA9275	II	INFECTIOUS SUBSTANCE.		197	197	None	Forbidden	Forbidden	E	
	Release devices, explosive	1.4S	UN0173	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	24E
	Resin solution, *flammable*	3	UN1866	II	FLAMMABLE LIQUID	B52, T7, T30	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, B52, T7, T30.	150	203	242	60 L	220 L	A	
	Resorcinol	6.1	UN2876	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Rifle grenade, see Grenades, *hand or rifle, etc.*												
	Rifle powder, see Powder, smokeless (*UN 0160*)												
	Rivets, explosive	1.4S	UN0174	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	Road asphalt or tar liquid, see Tars, liquid, *etc.*												
	Rocket motors	1.3C	UN0186	II	EXPLOSIVE 1.3C	109	None	62	None	Forbidden	220 kg	B	9E
	Rocket motors	1.1C	UN0280	II	EXPLOSIVE 1.1C	109	None	62	None	Forbidden	Forbidden	B	
	Rocket motors	1.2C	UN0281	II	EXPLOSIVE 1.2C	109	None	62	None	Forbidden	Forbidden	B	
	Rocket motors, liquid fueled	1.2J	UN0395	II	EXPLOSIVE 1.2J	109	None	62	None	Forbidden	Forbidden	E	7E, 16E, 23E
	Rocket motors, liquid fueled	1.3J	UN0396	II	EXPLOSIVE 1.3J	109	None	62	None	Forbidden	Forbidden	E	7E, 16E, 23E
	Rocket motors with hypergolic liquids *with or without an expelling charge.*	1.3L	UN0250	II	EXPLOSIVE 1.3L	109	None	62	None	Forbidden	Forbidden	E	2E, 8E, 11E, 17E
	Rocket motors with hypergolic liquids *with or without an expelling charge.*	1.2L	UN0322	II	EXPLOSIVE 1.2L	109	None	62	None	Forbidden	Forbidden	E	2E, 8E, 11E, 17E
	Rockets, line throwing	1.4G	UN0453	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	B	
	Rockets, line-throwing	1.2G	UN0238	II	EXPLOSIVE 1.2G		None	62	None	Forbidden	Forbidden	B	
	Rockets, line-throwing	1.3G	UN0240	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	75 kg	B	
	Rockets, liquid fueled *with bursting charge*	1.2J	UN0398	II	EXPLOSIVE 1.2J		None	62	None	Forbidden	Forbidden	E	7E, 16E, 23E
	Rockets, liquid fueled *with bursting charge*	1.1J	UN0397	II	EXPLOSIVE 1.1J		None	62	None	Forbidden	Forbidden	E	7E, 16E, 23E
	Rockets, *with bursting charge*	1.1F	UN0180	II	EXPLOSIVE 1.1F		None	62	None	Forbidden	Forbidden	E	
	Rockets, *with bursting charge*	1.1E	UN0181	II	EXPLOSIVE 1.1E		None	62	None	Forbidden	Forbidden	B	
	Rockets, *with bursting charge*	1.2E	UN0182	II	EXPLOSIVE 1.2E		None	62	None	Forbidden	Forbidden	B	
	Rockets, *with bursting charge*	1.2F	UN0295	II	EXPLOSIVE 1.2F		None	62	None	Forbidden	Forbidden	E	
	Rockets, *with expelling charge*	1.2C	UN0436	II	EXPLOSIVE 1.2C		None	62	None	Forbidden	Forbidden	B	
	Rockets, *with expelling charge*	1.3C	UN0437	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	
	Rockets, *with expelling charge*	1.4C	UN0438	II	EXPLOSIVE 1.4C		None	62	None	Forbidden	75 kg	A	24E
	Rockets, *with inert head*	1.3C	UN0183	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	
	Rosin oil	3	UN1286	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Rubber solution	3	UN1287	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Rubidium	4.3	UN1423	I	DANGEROUS WHEN WET.	22, A7, A19, N34, N40, N45.	None	211	242	Forbidden	15 kg	D	
	Rubidium hydroxide	8	UN2678	II	CORROSIVE	T8	154	212	240	15 kg	50 kg	A	
	Rubidium hydroxide solution	8	UN2677	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	
	Safety fuse, see Fuse, safety												
	Samples, explosive, *other than initiating explosives*		UN0190			113		62	None	Forbidden	Forbidden	E	12E
	Sand acid, see Fluorosilicic acid												

	Seed cake, *containing vegetable oil solvent extractions and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 11%, not more than 20% of oil and moisture combined.*	4.2	UN1386	III	None	N7	None	213	241	Forbidden	Forbidden	A	13
I	Seed cake *with more than 1.5 percent oil and not more than 11 percent moisture.*	4.2	UN1386	III	None	N7	None	213	241	Forbidden	Forbidden	E	13
I	Seed cake *with not more than 1.5 percent oil and not more than 11 percent moisture.*	4.2	UN2217	III	None	N7	None	213	241	Forbidden	Forbidden	A	13
	Selenates *or* Selenites	6.1	UN2630	I	POISON		None	211	242	5 kg	50 kg	E	
	Selenic acid	8	UN1905	I	CORROSIVE	N34	None	211	242	Forbidden	25 kg	A	
	Selenites, *see* Selenates *or* Selenites												
	Selenium disulfide	6.1	UN2657	II	POISON		None	212	242	25 kg	100 kg	A	
	Selenium hexafluoride	2.3	UN2194		POISON GAS	1	None	302	None	Forbidden	Forbidden	D	40
	Selenium nitride	Forbidden											
D	Selenium oxide	6.1	NA2811	I	POISON		None	211	242	5 kg	50 kg	B	
	Selenium oxychloride	8	UN2879	I	CORROSIVE, POISON.	A3, A6, A7, N34, T12, T27.	None	201	243	0.5 L	2.5 L	E	40, 85
	Selenium powder	6.1	UN2658	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Self-heating substances, solid, corrosive, n.o.s.	4.2	UN3126	II	SPONTANEOUSLY COMBUSTIBLE, CORROSIVE.		None	212	242	15 kg	50 kg	C	
				III	SPONTANEOUSLY COMBUSTIBLE, CORROSIVE.		None	213	242	25 kg	100 kg	C	
	Self-heating substances, solid, n.o.s.	4.2	UN3088	II	SPONTANEOUSLY COMBUSTIBLE.		None	212	241	15 kg	50 kg	C	
				III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	25 kg	100 kg	C	
	Self-heating substances, solid, oxidizing, n.o.s.	4.2	UN3127		SPONTANEOUSLY COMBUSTIBLE, OXIDIZER.		None	214	214	Forbidden	Forbidden		
	Self-heating substances, solid, poisonous, n.o.s.	4.2	UN3128	II	SPONTANEOUSLY COMBUSTIBLE, POISON.		None	212	242	15 kg	50 kg	C	
				III	SPONTANEOUSLY COMBUSTIBLE, KEEP AWAY FROM FOOD.		None	213	242	25 kg	100 kg	C	
	Self-propelled vehicle, see Vehicles, self-propelled												
	Self-reactive substances (*aliphatic azocompounds, aromatic sulphohydrazides, N-nitroso compounds, diazonium salts*) Sample, n.o.s.	4.1	UN3031	II	FLAMMABLE SOLID		None	214	None	Forbidden	Forbidden	D	
	Self-reactive substances (*aliphatic azocompounds, aromatic sulphohydrazides, N-nitroso compounds, diazonium salts*), Trial quantities, n.o.s.	4.1	UN3032	II	FLAMMABLE SOLID		None	214	None	Forbidden	Forbidden	D	
	Shale oil	3	UN1288	I	FLAMMABLE LIQUID	T7	None	201	243	1 L	30 L	B	
				II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Shaped charges, commercial, see Charges, shaped, commercial *etc.*												
	Signal devices, hand	1.4G	UN0191	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E
	Signal devices, hand	1.4S	UN0373	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	Signals, distress, *ship*	1.1G	UN0194	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	
	Signals, distress, *ship*	1.3G	UN0195	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	75 kg	B	
	Signals, highway, see Signal devices, hand; Fireworks, type D.												
	Signals, railway track, explosive	1.1G	UN0192	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	
	Signals, railway track, explosive	1.4S	UN0193	II	EXPLOSIVE 1.4S		None	62	None	25 kg	100 kg	A	9E
	Signals, ship distress, wateractivated, see Contrivances, water-activated, *etc.*												
	Signals, smoke	1.1G	UN0196	II	EXPLOSIVE 1.1G		None	62	None	Forbidden	Forbidden	B	
	Signals, smoke	1.2G	UN0313	II	EXPLOSIVE 1.2G		None	62	None	Forbidden	Forbidden	B	
	Signals, smoke	1.4G	UN0197	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Signals, smoke	1.3G	UN0487	II	EXPLOSIVE 1.3G		None	82	None	Forbidden	Forbidden	B	1E, 7E, 25E
	Silane	2.1	UN2203		FLAMMABLE GAS		None	302	None	Forbidden	Forbidden	E	40, 57, 104
	Silicofluoric acid, see Fluorosilicic acid												
	Silicon chloride, see Silicon tetrachloride												
	Silicon powder, amorphous	4.1	UN1346	III	FLAMMABLE SOLID	A1	None	213	240	25 kg	100 kg	A	
	Silicon tetrachloride	8	UN1818	II	CORROSIVE	A3, A6, B2, B6, N41, T18, T26, T29.	154	202	242	1 L	30 L	C	8, 40
	Silicon tetrafluoride	2.3	UN1859		POISON GAS, CORROSIVE.	4	None	302	None	Forbidden	25 kg	D	40
	Silver acetylide (dry)	Forbidden											
	Silver arsenite	6.1	UN1683	II	POISON		None	212	242	25 kg	100 kg	A	
	Silver azide (dry)	Forbidden											
	Silver chlorite (dry)	Forbidden											
	Silver cyanide	6.1	UN1684	II	POISON		None	212	242	25 kg	100 kg	A	26, 40
	Silver fulminate (dry)	Forbidden											
	Silver nitrate	5.1	UN1493	II	OXIDIZER		152	212	242	5 kg	25 kg	A	
	Silver oxalate (dry)	Forbidden											
	Silver picrate (dry)	Forbidden											
	Silver picrate, wetted *with not less than 30 per cent water, by mass.*	4.1	UN1347	I	FLAMMABLE SOLID		None	211	None	Forbidden	Forbidden	D	28, 36
	Sludge, acid	8	UN1906	II	CORROSIVE	A3, A7, B2, N34, T9, T27.	None	202	242	Forbidden	30 L	C	14
D	Smokeless powder for small arms (*100 pounds or less*).	4.1	NA1325	I	FLAMMABLE SOLID	16	None	171	None	Forbidden	Forbidden	A	
	Soda lime *with more than 4 per cent sodium hydroxide.*	8	UN1907	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Sodium	4.3	UN1428	II	DANGEROUS WHEN WET.	A7, A8, A19, A20, B9, B28, B68, N34, T15, T28, T29.	None	212	244	Forbidden	50 kg	D	
	Sodium aluminate, solid	8	UN2812	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Sodium aluminate, solution	8	UN1819	II	CORROSIVE	B2, T6	154	202	242	1 L	30 L	A	
	Sodium aluminum hydride	4.3	UN2835	II	DANGEROUS WHEN WET.	A8, A19, A20	None	212	242	Forbidden	50 kg	E	
	Sodium ammonium vanadate	6.1	UN2863	II	POISON		None	212	242	25 kg	100 kg	A	
	Sodium arsanilate	6.1	UN2473	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	
	Sodium arsenate	6.1	UN1685	II	POISON		None	212	240	25 kg	100 kg	A	
	Sodium arsenite, aqueous solutions	6.1	UN1686	II	POISON	T15	None	202	243	5 L	60 L	A	
				III	KEEP AWAY FROM FOOD.	T15	153	203	241	60 L	220 L	A	
	Sodium arsenite, solid	6.1	UN2027	II	POISON		None	212	242	25 kg	100 kg	A	
	Sodium azide	6.1	UN1687	II	POISON	B28	None	212	242	25 kg	100 kg	A	36, 52, 81
	Sodium bifluoride, see Sodium hydrogen fluoride												
	Sodium bisulfate, solid or solution, see Sodium hydrogen sulfate, solid or solution.												
	Sodium bisulfite, solution, see Bisulfites, inorganic, aqueous solutions, n.o.s.												
	Sodium borohydride	4.3	UN1426	I	DANGEROUS WHEN WET.	N40	None	211	242	Forbidden	15 kg	E	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Sodium pentachlorophenate	6.1	UN2567	II	POISON		None	212	242	25 kg	100 kg	A	
	Sodium percarbonate	5.1	UN2467	III	OXIDIZER	27, A1, A29	152	213	240	25 kg	100 kg	A	13
	Sodium perchlorate	5.1	UN1502	II	OXIDIZER	T8	152	212	242	5 kg	25 kg	A	56, 58, 106
	Sodium permanganate	5.1	UN1503	II	OXIDIZER		152	212	242	5 kg	25 kg	D	56, 58, 69, 106, 107
	Sodium peroxide	5.1	UN1504	I	OXIDIZER	A20, N34	None	211	None	Forbidden	15 kg	B	13, 75, 106
	Sodium persulfate	5.1	UN1505	III	OXIDIZER	A1	152	213	240	25 kg	100 kg	A	
	Sodium phenolate, solid	8	UN2497	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Sodium phosphide	4.3	UN1432	I	DANGEROUS WHEN WET, POISON.	A19, N40	None	211	None	Forbidden	15 kg	E	40, 85
	Sodium picramate, *dry or wetted with less than 20 per cent water, by mass.*	1.3C	UN0235	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Sodium picramate, wetted *with not less than 20 per cent water, by mass.*	4.1	UN1349	I	FLAMMABLE SOLID	A8, A19, N41	None	211	None	Forbidden	15 kg	E	28, 38
	Sodium picryl peroxide	Forbidden											
	Sodium potassium alloys, see Potassium sodium alloys												
	Sodium salts of aromatic nitro-derivatives, n.o.s. *explosive.*	1.3C	UN0203	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Sodium selenate, see Selenates *or* Selenites												
D	Sodium selenite	6.1	NA2630	II	POISON		None	212	242	25 kg	100 kg	E	
	Sodium sulfide, anhydrous *or* Sodium sulfide *with less than 30 per cent water of crystallization.*	4.2	UN1385	II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N34	None	212	241	15 kg	50 kg	A	
	Sodium sulfide, hydrated *with at least 30 per cent water.*	8	UN1849	II	CORROSIVE	T8	154	212	240	15 kg	50 kg	A	28
	Sodium superoxide	5.1	UN2547	I	OXIDIZER	A20, N34	None	211	None	Forbidden	15 kg	E	13, 75, 106
	Sodium tetranitride	Forbidden											
	Sounding devices, explosive	1.2F	UN0204	II	EXPLOSIVE 1.2F		None	62	None	Forbidden	Forbidden	E	
	Sounding devices, explosive	1.1F	UN0296	II	EXPLOSIVE 1.1F		None	62	None	Forbidden	Forbidden	E	
	Sounding devices, explosive	1.1D	UN0374	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	
	Sounding devices, explosive	1.2D	UN0375	II	EXPLOSIVE 1.2D		None	62	None	Forbidden	Forbidden	B	
	Spirits of salt, see Hydrochloric acid												
	Squibs, see Igniters *etc.*												
	Stannic chloride, anhydrous	8	UN1827	II	CORROSIVE	B2, T8, T26	154	202	242	1 L	30 L	C	8
	Stannic chloride, pentahydrate	8	UN2440	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	Stannic phosphide	4.3	UN1433	I	DANGEROUS WHEN WET, POISON.	A19, N40	None	211	242	Forbidden	15 kg	E	40, 85
	Steel swarf, *see* Ferrous metal borings, *etc.*												
	Stibine	2.3	UN2676		POISON GAS, FLAMMABLE GAS.	1	None	304	None	Forbidden	Forbidden	D	40
	Storage batteries, wet, see Batteries, *wet etc.*												
	Strontium arsenite	6.1	UN1691	II	POISON		None	212	242	25 kg	100 kg	A	
	Strontium chlorate, solid *or* solution	5.1	UN1506	II	OXIDIZER	A1, A9, N34, T6	152	212	242	5 kg	25 kg	A	56, 58, 106
	Strontium nitrate	5.1	UN1507	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	
	Strontium perchlorate	5.1	UN1508	II	OXIDIZER	T8	152	212	242	5 kg	25 kg	A	56, 58, 106
	Strontium peroxide	5.1	UN1509	II	OXIDIZER		152	212	242	5 kg	25 kg	A	13, 75, 106

Strontium phosphide	4.3	UN2013	I	DANGEROUS WHEN WET. POISON.	A19, N40	None	211	None	Forbidden	15 kg	E	40, 85
Strychnine *or* Strychnine salts	6.1	UN1692	I	POISON		None	211	242	5 kg	50 kg	A	40
Styphnic acid, *see* Trinitroresorcinol, *etc.*												
Styrene monomer, inhibited	3	UN2055	III	FLAMMABLE LIQUID	$B1_f$, T1	150	203	242	60 L	220 L	A	
Substances, explosive, n.o.s.	1.1L	UN0357	II	EXPLOSIVE 1.1L	101	None	62	None	Forbidden	Forbidden	E	2E, 8E, 11E, 17E
Substances, explosive, n.o.s.	1.2L	UN0358	II	EXPLOSIVE 1.2L	101	None	62	None	Forbidden	Forbidden	E	2E, 8E, 11E, 17E
Substances, explosive, n.o.s.	1.3L	UN0359	II	EXPLOSIVE 1.3L	101	None	62	None	Forbidden	Forbidden	E	2E, 6E, 11E, 17E
Substances, explosive, n.o.s.	1.1A	UN0473	II	EXPLOSIVE 1.1A	101, 111	None	62	None	Forbidden	Forbidden	E	2E, 6E
Substances, explosive, n.o.s.	1.1C	UN0474	II	EXPLOSIVE 1.1C	101	None	62	None	Forbidden	Forbidden	B	1E, 5E
Substances, explosive, n.o.s.	1.1D	UN0475	II	EXPLOSIVE 1.1D	101	None	62	None	Forbidden	Forbidden	B	1E, 5E
Substances, explosive, n.o.s.	1.1G	UN0476	II	EXPLOSIVE 1.1G	101	None	62	None	Forbidden	Forbidden	B	1E, 8E
Substances, explosive, n.o.s.	1.3C	UN0477	II	EXPLOSIVE 1.3C	101	None	62	None	Forbidden	Forbidden	B	1E, 5E
Substances, explosive, n.o.s.	1.3G	UN0478	II	EXPLOSIVE 1.3G	101	None	62	None	Forbidden	Forbidden	E	1E, 8E
Substances, explosive, n.o.s.	1.4G	UN0485	II	EXPLOSIVE 1.4G	101	None	62	None	Forbidden	75 kg	E	1E, 5E
Substances, explosive, n.o.s.	1.4S	UN0481	II	EXPLOSIVE 1.4S	101	None	62	None	25 kg	75 kg	A	1E, 5E
Substances, explosive, very insensitive, n.o.s., *or* Substances, EVI, n.o.s.	1.5D	UN0482	II	EXPLOSIVE 1.5D	101	None	62	None	Forbidden	Forbidden	B	1E, 5E
Substances, explosives, n.o.s.	1.4C	UN0479	II	EXPLOSIVE 1.4C	101	None	62	None	Forbidden	75 kg	A	1E, 5E
Substances, explosives, n.o.s.	1.4D	UN0480	II	EXPLOSIVE 1.4D	101	None	62	None	Forbidden	75 kg	A	1E, 5E
Substances which in contact with water emit flammable gases, liquid, corrosive, n.o.s.	4.3	UN3129	I	DANGEROUS WHEN WET, CORROSIVE.		None	201	243	Forbidden	1 L	E	
			II	DANGEROUS WHEN WET, CORROSIVE.		None	202	243	1 L	5 L	E	
			III	DANGEROUS WHEN WET, CORROSIVE.		None	203	242	5 L	60 L	E	
Substances which in contact with water emit flammable gases, liquid n.o.s.	4.3	UN3148	I	DANGEROUS WHEN WET.		None	201	244	Forbidden	1 L	E	40
			II	DANGEROUS WHEN WET.		None	202	243	1 L	5 L	E	40
			III	DANGEROUS WHEN WET.		None	203	243	5 L	60 L	E	40
Substances which in contact with water emit flammable gases, liquid, poisonous, n.o.s.	4.3	UN3130	I	DANGEROUS WHEN WET, POISON.	A4	None	201	243	Forbidden	1 L	E	
			II	DANGEROUS WHEN WET, POISON.		None	202	243	1 L	5 L	E	
			III	DANGEROUS WHEN WET, KEEP AWAY FROM FOOD.		None	203	242	5 L	60 L	E	
Substances which in contact with water emit flammable gases, solid, corrosive, n.o.s.	4.3	UN3131	I	DANGEROUS WHEN WET, CORROSIVE.	N40	None	211	242	Forbidden	15 kg	E	
			II	DANGEROUS WHEN WET, CORROSIVE.		None	212	242	15 kg	50 kg	E	
			III	DANGEROUS WHEN WET, CORROSIVE.		None	213	241	25 kg	100 kg	E	
Substances which in contact with water emit flammable gases, solid, flammable n.o.s.	4.3	UN3132	I	DANGEROUS WHEN WET, FLAMMABLE SOLID.	N40	None	211	242	Forbidden	15 kg	E	
			II	DANGEROUS WHEN WET, FLAMMABLE SOLID.		None	212	242	15 kg	50 kg	E	
			III	DANGEROUS WHEN WET, FLAMMABLE SOLID.		None	213	241	25 kg	100 kg	E	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Substances which in contact with water emit flammable gases, solid n.o.s..	4.3	UN2813	I	DANGEROUS WHEN WET.	N40	None	211	242	Forbidden	15kg	E	40
				II	DANGEROUS WHEN WET.		None	212	242	15kg	50kg	E	40
				III	DANGEROUS WHEN WET.		None	213	242	25kg	100kg	E	40
	Substances which in contact with water emit flammable gases, solid, oxidizing, n.o.s..	4.3	UN3133		DANGEROUS WHEN WET, OXIDIZER.		None	214	214	Forbidden	Forbidden		
	Substances which in contact with water, emit flammable gases, solid, poisonous, n.o.s..	4.3	UN3134	I	DANGEROUS WHEN WET, POISON.	A5, N40	None	211	242	Forbidden	15kg	E	
				II	DANGEROUS WHEN WET, POISON.		None	212	242	15kg	50kg	E	
				III	DANGEROUS WHEN WET, KEEP AWAY FROM FOOD.		None	213	241	25kg	100kg	E	
	Substances which in contact with water emit flammable gases, solid, self-heating, n.o.s..	4.3	UN3135	I	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.	N40	None	211	242	Forbidden	15 kg	E	
				II	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.		None	212	242	15 kg	50 kg	E	
				III	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.		None	213	241	25 kg	100 kg	E	
	Substituted nitrophenol pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23 degrees C.*	3	UN2780	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Substituted nitrophenol pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN3013	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	B1, T14	153	203	242	60 L	220 L	A	40
	Substituted nitrophenol pesticides, liquid, toxic, n.o.s..	6.1	UN3014	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Substituted nitrophenol pesticides, solid, toxic, n.o.s..	6.1	UN2779	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Sucrose octanitrate (dry)	Forbidden											
	Sulfamic acid	8	UN2967	III	CORROSIVE		154	213	240	25 kg	100 kg	A	

I	Sulfur	4.1	UN1350	III	FLAMMABLE SOLID	A1, N20	151	213	240	25 kg	100 kg	A	19, 74
D	Sulfur	9	NA1350	III	CLASS 9	A1, N20	151	213	240	25 kg	100 kg	A	19, 74
	Sulfur and chlorate, loose mixtures of	Forbidden											
	Sulfur chlorides	8	UN1828	I	CORROSIVE	5, A3, B10, B77, N34.	None	201	243	Forbidden	2.5 L	C	8, 40
	Sulfur dichloride, see Sulfur chlorides												
	Sulfur dioxide, liquefied	2.3	UN1079		POISON GAS	3, B14	None	304	314, 315	Forbidden	25 kg	D	40
	Sulfur dioxide solution, see Sulfurous acid												
	Sulfur hexafluoride	2.2	UN1080		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
I	Sulfur, molten	4.1	UN2448	III	FLAMMABLE SOLID	B12, B85, T9	None	213	241	Forbidden	Forbidden	C	61
D	Sulfur, molten	9	NA2448	III	CLASS 9	B12, B85, T9	None	213	241	Forbidden	Forbidden	C	61
	Sulfur tetrafluoride	2.3	UN2418		POISON GAS	1	None	302	245	Forbidden	25 kg	D	40
+	Sulfur trioxide, inhibited	8	UN1829	I	CORROSIVE, POISON.	2, A7, B9, B12, B14, B32, B49, B74, B77, N34, T38, T43, T45.	None	227	244	Forbidden	25 kg	A	10, 40
+, D	Sulfur trioxide, uninhibited	8	NA1829	I	CORROSIVE, POISON.	2, A7, B9, B12, B14, B32, B49, B74, B77, N34, T38, T43, T45.	None	227	244	Forbidden	25 kg	A	10, 40
	Sulfuretted hydrogen, see Hydrogen sulfide, liquefied.												
	Sulfuric acid	8	UN1830	II	CORROSIVE	A3, A7, B2, B83, B84, N34, T9, T27.	154	202	242	1 L	30 L	C	14
+	Sulfuric acid, fuming *greater than or equal to 30 percent free sulfur trioxide.*	8	UN1831	I	CORROSIVE, POISON.	2, A3, A6, A7, B9, B14, B32, B74, B77, B84, N34, T38, T43, T45.	None	227	244	Forbidden	2.5 L	C	14, 40
	Sulfuric acid, fuming *less than 30 percent free sulfur trioxide.*	8	UN1831	I	CORROSIVE, POISON.	A3, A7, B84, N34, T18, T27.	None	201	243	Forbidden	2.5 L	C	14, 40
	Sulfuric acid, spent	8	UN1832	II	CORROSIVE	A3, A7, B2, B83, B84, N34, T9, T27.	None	202	242	Forbidden	30 L	C	14
	Sulfuric and hydrofluoric acid mixtures, *see* Hydrofluoric and sulfuric acid mixtures.												
	Sulfuric anhydride, see Sulfur trioxide, inhibited												
	Sulfurous acid	8	UN1833	II	CORROSIVE	B3, T8	154	202	242	1 L	30 L	B	40
+	Sulfuryl chloride	8	UN1834	I	CORROSIVE, POISON.	1, A3, B6, B9, B10, B14, B32, B74, B77, N34, T38, T43, T44.	None	226	244	0.5 L	2.5 L	C	8, 40
	Sulfuryl fluoride	2.3	UN2191		POISON GAS	4	None	304	314, 315	Forbidden	25 kg	D	40
	Tars, liquid *including road asphalt and oils, bitumen and cut backs.*	3	UN1999	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Tear gas candles	6.1	UN1700	II	POISON, FLAMMABLE SOLID.		None	340	None	Forbidden	50 kg	D	40
	Tear gas cartridges, see Ammunition, tear-producing, *etc.*												
D	Tear gas devices *with more than 2 per cent tear gas substances, by mass.*	6.1	NA1693	I	POISON		None	340	None	Forbidden	Forbidden	D	40, 95
				II	POISON		None	340	None	Forbidden	Forbidden	D	40, 95
	Tear gas devices, with not more than 2 per cent tear gas substances, by mass, see Aerosols, *etc.*												
	Tear gas grenades, see Tear gas candles												
	Tear gas substances, n.o.s., liquid	6.1	UN1693	I	POISON		None	201	None	Forbidden	Forbidden	D	40
				II	POISON		None	202	None	Forbidden	5 L	D	40
	Tear gas substances, n.o.s., solid	6.1	UN1693	I	POISON		None	211	None	Forbidden	Forbidden	D	40
				II	POISON		None	212	None	Forbidden	25 kg	D	40
	Tellurium hexafluoride	2.3	UN2195		POISON GAS	1	None	302	None	Forbidden	Forbidden	D	40
	Terpene hydrocarbons, n.o.s.	3	UN2319	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Terpinolene	3	UN2541	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Tetraazido benzene quinone	Forbidden											
	Tetrabromoethane	6.1	UN2504	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	Tetrachloroethane	6.1	*UN1702*	II	*POISON*	*N36, T14*	None	202	243	5 L	60 L	A	40
	Tetrachloroethylene	6.1	UN1897	III	KEEP AWAY FROM FOOD.	N36, T1	153	203	241	60 L	220 L	A	40
	Tetraethyl dithiopyrophosphate	6.1	UN1704	II	POISON		None	212	242	25 kg	100 kg	D	40
	Tetraethyl dithiopyrophosphate and gases in solution *or* tetraethyl dithiopyrophosphate and gas mixtures *LC50 over 200 but not greater than 5000 ppm.*	2.3	UN1703		POISON GAS	6	None	334	245	Forbidden	Forbidden	D	40
	Tetraethyl dithiopyrophosphate and gases in solution *or* Tetraethyl dithiopyrophosphate and gases mixtures *LC50 less than or equal to 200 ppm.*	2.3	UN1703		POISON GAS	1	None	334	245	Forbidden	Forbidden	D	40, 65, 95
D	Tetraethyl lead, liquid	6.1	NA1649	I	POISON, FLAMMABLE LIQUID.		None	201	None	Forbidden	Forbidden	E	40
	Tetraethyl pyrophosphate and compressed gas mixtures *LC50 less than or equal to 200 ppm.*	2.3	UN1705		POISON GAS	1	None	334	245	Forbidden	Forbidden	D	40, 65, 95
	Tetraethyl pyrophosphate and compressed gas mixtures) *LC50 over 200 ppm but not greater than 5000 ppm.*	2.3	UN1705		POISON GAS	6, B9, B14	None	334	314, 315	Forbidden	Forbidden	D	40
D	Tetraethyl pyrophosphate, *liquid*	6.1	NA3018	I	POISON		None	201	243	Forbidden	1 L	A	40
D	Tetraethyl pyrophosphate *solid*	6.1	NA2783	I	POISON	N77	None	211	242	Forbidden	50 kg	A	40
	Tetraethyl silicate	3	UN1292	III	FLAMMABLE LIQUID	B1, T1	150	203	241	60 L	220 L	A	
	Tetraethylammonium perchlorate (dry)	Forbidden											
	Tetraethylenepentamine	8	UN2320	III	CORROSIVE	T2	154	203	241	5 L	60 L	A	8
	Tetrafluoroethylene, inhibited	2.1	UN1081		*FLAMMABLE GAS*		306	304	None	Forbidden	150 kg	E	40
	Tetrafluoromethane, *R14*	2.2	UN1982		NONFLAMMABLE GAS.		None	302	None	75 kg	150 kg	A	
	1,2,3,6-Tetrahydrobenzaldehyde	3	UN2498	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Tetrahydrofuran	3	UN2056	II	FLAMMABLE LIQUID	T8	None	202	242	5 L	60 L	B	
	Tetrahydrofurfurylamine	3	UN2943	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Tetrahydrophthalic anhydrides *with more than 0.05 percent of maleic anhydride.*	8	UN2698	III	CORROSIVE		154	213	240	25 kg	100 kg	A	
	1,2,3,6-Tetrahydropyridine	3	*UN2410*	II	*FLAMMABLE LIQUID*	T8	150	202	242	5 L	60 L	B	
	Tetrahydrothiophene	3	UN2412	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	
	Tetramethylammonium hydroxide	8	UN1835	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	A	
	Tetramethylene diperoxide dicarbamide	Forbidden											
	Tetramethylsilane	3	UN2749	I	FLAMMABLE LIQUID	T21, T26	None	201	243	Forbidden	30 L	D	
	Tetranitro diglycerin	Forbidden											
	Tetranitroaniline	1.1D	UN0207	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 10E
+	Tetranitromethane	5.1	UN1510	I	OXIDIZER, POISON	2, B9, B14, B32, B74, T38, T43, T45.	None	227	None	Forbidden	Forbidden	D	40, 66, 106
	2,3,4,6-Tetranitrophenol	Forbidden											
	2,3,4,6-Tetranitrophenyl methyl nitramine	Forbidden											
	2,3,4,6-Tetranitrophenylnitramine	Forbidden											
	Tetranitroresorcinol (dry)	Forbidden											
	2,3,5,6-Tetranitroso-1,4-dinitrobenzene	Forbidden											
	2,3,5,6-Tetranitroso nitrobenzene (dry)	Forbidden											
	Tetrapropylorthotitanate	3	UN2413	III	FLAMMABLE LIQUID	B1, T8	150	202	242	5 L	60 L	A	
	Tetrazene, *see* Guanyl nitrosaminoguanyltetrazene												

	Tetrazine (dry)	Forbidden												
	Tetrazol-1-acetic acid	1.4C	UN0407	II	EXPLOSIVE 1.4C		None	62	None	Forbidden	75 kg	A	1E, 5E	
	Tetrazolyl azide (dry)	Forbidden												
	Tetryl, *see* Trinitrophenylmethylnitramine													
	Thallium chlorate	5.1	UN2573	II	OXIDIZER, POISON		None	212	242	5 kg	25 kg	A	56, 58, 106	
	Thallium compounds, n.o.s.	6.1	UN1707	II	POISON		None	212	242	25 kg	100 kg	A		
	Thallium nitrate	6.1	UN2727	II	POISON, OXIDIZER		None	212	242	5 kg	25 kg	A	89	
D	Thallium sulfate, solid	6.1	NA1707	II	POISON		None	211	242	5 kg	50 kg	A		
	Thia-4-pentanal	6.1	UN2785	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	D	25, 49	
	Thioacetic acid	3	UN2436	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B		
	Thiocarbonylchloride, see Thiophosgene													
	Thioglycol	6.1	UN2966	II	POISON	T8	None	202	243	5 L	60 L	A		
	Thioglycolic acid	8	UN1940	II	CORROSIVE	A7, B2, N34, T8.	154	202	242	1 L	30 L	A		
	Thiolactic acid	6.1	UN2936	II	POISON	T8	None	212	242	25 kg	100 kg	A		
+	Thionyl chloride	8	UN1836	I	CORROSIVE, POISON.	2, A3, A10, B6, B9, B14, B32, B74, B77, N34, T38, T43, T45.	None	227	244	Forbidden	2.5 L	C	8, 40	
	Thiophene	3	UN2414	II	FLAMMABLE LIQUID	T2	150	202	242	5 L	60 L	B	40	
+	Thiophosgene	6.1	UN2474	II	POISON	2, A7, B9, B14, B32, B74, N33, N34, T38, T43, T45.	None	227	244	Forbidden	60 L	B	26, 40	
	Thiophosphoryl chloride	8	UN1837	II	CORROSIVE	A3, A7, B2, B8, B25, N34, T12.	None	202	242	Forbidden	30 L	C	8, 40	
	Thorium metal, pyrophoric	7	UN2975		RADIOACTIVE, SPONTANEOUSLY COMBUSTIBLE.		None	418	None	Forbidden	Forbidden	D		
	Thorium nitrate, solid	7	UN2976		RADIOACTIVE, OXIDIZER.		None	419	None	Forbidden	15 kg	A		
	Tin chloride, fuming, see Stannic chloride, anhydrous.													
	Tin perchloride or Tin tetrachloride, see Stannic chloride, anhydrous.													
	Tinctures, medicinal	3	UN1293	II	FLAMMABLE LIQUID	T8, T31	150	202	242	5 L	60 L	B		
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	241	60 L	220 L	A		
	Tinning flux, see Zinc chloride													
	Titanium hydride	4.1	UN1871	II	FLAMMABLE SOLID	A19, A20, N34	None	212	241	15 kg	50 kg	E		
	Titanium powder, dry	4.2	UN2546	I	SPONTANEOUSLY COMBUSTIBLE.		None	211	242	Forbidden	Forbidden	D		
				II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N5, N34.	None	212	241	15 kg	50 kg	D		
				III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	25 kg	100 kg	D		
	Titanium powder, wetted *with not less than 25 per cent water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced, particle size less than 840 microns.*	4.1	UN1352	II	FLAMMABLE SOLID	A19, A20, N34	None	212	240	15 kg	50 kg	E		
	Titanium sponge granules *or* Titanium sponge powders.	4.1	UN2878	III	FLAMMABLE SOLID	A1	None	213	240	25 kg	100 kg	D		
D	Titanium sulfate solution	8	NA1760	II	CORROSIVE	B2, B15	None	213	242	1 L	30 L	B	40	
+	Titanium tetrachloride	8	UN1838	II	CORROSIVE, POISON.	2, A3, A6, B7, B9, B14, B32, B41, B74, N41, T38, T43, T45.	None	227	244	Forbidden	30 L	C	8, 40	
	Titanium trichloride mixtures	8	UN2869	II	CORROSIVE	A7, N34	154	212	240	15 kg	50 kg	A	40	
	Titanium trichloride, pyrophoric *or* Titanium trichloride mixtures, pyrophoric.	4.2	UN2441	I	SPONTANEOUSLY COMBUSTIBLE, CORROSIVE.	A7, A8, A19, A20, N34.	None	181	244	Forbidden	Forbidden	D	40	
	TNT mixed with aluminum, see Tritonal													
	TNT, *see* Trinitrotoluene, *etc.*													
	Toe puffs, *nitrocellulose base*	4.1	UN1353	III	FLAMMABLE SOLID	A1	None	213	240	25 kg	100 kg	D		

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Toluene	3	UN1294	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Toluene diisocyanate	6.1	UN2078	II	POISON	T14	None	202	243	5 L	60 L	B	25, 40
	Toluene sulfonic acid, *see* Alkyl, Aryl *or* Toluene sulfonic acid *etc.*												
	Toluidines *liquid*	6.1	UN1708	II	POISON	T14	None	202	243	5 L	60 L	A	
	Toluidines *solid*	6.1	UN1708	II	POISON		None	212	241	25 kg	100 kg	A	
	2,4-Toluylenediamine *or* 2,4-Toluenediamine	6.1	UN1709	III	KEEP AWAY FROM FOOD.	T7	153	213	240	100 kg	200 kg	A	
	Torpedoes, liquid fuelled, *with inert head*	1.3J	UN0450	II	EXPLOSIVE 1.3J		63(b)	62	None	Forbidden	Forbidden	E	7E, 16E, 23E
	Torpedoes, liquid fuelled, *with or without bursting charge.*	1.1J	UN0449	II	EXPLOSIVE 1.1J		63(b)	62	None	Forbidden	Forbidden	E	7E, 16E, 23E
	Torpedoes *with bursting charge*	1.1E	UN0329	II	EXPLOSIVE 1.1E		63(b)	62	None	Forbidden	Forbidden	B	
	Torpedoes *with bursting charge*	1.1F	UN0330	II	EXPLOSIVE 1.1F		63(b)	62	None	Forbidden	Forbidden	B	
	Torpedoes *with bursting charge*	1.1D	UN0451	II	EXPLOSIVE 1.1D		63(b)	62	None	Forbidden	Forbidden	B	
	Tracers for ammunition	1.3G	UN0212	II	EXPLOSIVE 1.3G		None	62	None	Forbidden	Forbidden	B	
	Tracers for ammunition	1.4G	UN0306	II	EXPLOSIVE 1.4G		None	62	None	Forbidden	75 kg	A	24E
	Tractors, see Vehicles, self propelled												
	Tri-(b-nitroxyethyl) ammonium nitrate	Forbidden											
	Triallyl borate	6.1	UN2609	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	A	13
	Triallylamine	3	UN2610	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	40
	Triazine pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23deg C.*	3	UN2764	I	FLAMMABLE LIQUID, POISON.		None	201	243	Forbidden	30 L	B	
				II	FLAMMABLE LIQUID, POISON.		None	202	243	1 L	60 L	B	
	Triazine pesticides, liquid, toxic, flammable, n.o.s. *flashpoint not less than 23 degrees C.*	6.1	UN2997	I	POISON, FLAMMABLE LIQUID.	T42	None	201	243	1 L	30 L	B	40
				II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD, FLAMMABLE LIQUID.	T14	153	203	242	60 L	220 L	A	40
	Triazine pesticides, liquid, toxic, n.o.s.	6.1	UN2998	I	POISON	T42	None	201	243	1 L	30 L	B	40
				II	POISON	T14	None	202	243	5 L	60 L	B	40
				III	KEEP AWAY FROM FOOD.	T14	153	203	241	60 L	220 L	A	40
	Triazine pesticides, solid, toxic, n.o.s.	6.1	UN2763	I	POISON		None	211	242	5 kg	50 kg	A	40
				II	POISON		None	212	242	25 kg	100 kg	A	40
				III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	40
	Tributylamine	8	UN2542	III	CORROSIVE	T2	None	203	241	5 L	60 L	A	
D	(mono-(Trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetrione, dry (*containing over 39% available chlorine*).	5.1	NA2468	II	OXIDIZER		152	212	240	5 kg	25 kg	A	13
	Trichloro-s-triazinetrione dry, containing over 39% available chlorine, see Trichloroisocyanuric acid, dry.												
	Trichloroacetic acid	8	UN1839	II	CORROSIVE	A7, N34	154	212	240	15 kg	50 kg	A	
	Trichloroacetic acid, solution	8	UN2564	II	CORROSIVE	A3, A6, A7, B2, N34, T8.	154	202	242	1 L	30 L	B	8
+	Trichloroacetyl chloride	8	UN2442	II	CORROSIVE, POISON.	1, A3, A7, B9, B14, B30, B72, N34, T38, T43, T44.	None	226	244	Forbidden	Forbidden	D	40

	Trichlorobenzenes, liquid	6.1	UN2321	III	KEEP AWAY FROM FOOD.	T7	153	203	241	60 L	220 L	A	
	Trichlorobutene	6.1	UN2322	II	POISON	T8	None	202	243	5 L	60 L	A	25, 40, 48
	1,1,1-Trichloroethane	6.1	UN2831	III	KEEP AWAY FROM FOOD.	N36, T7	153	203	241	60 L	220 L	A	40
	Trichloroethylene	6.1	UN1710	III	KEEP AWAY FROM FOOD.	N36, T1	153	203	241	60 L	220 L	A	40
	Trichloroisocyanuric acid, dry	5.1	UN2468	II	OXIDIZER		152	212	240	5 kg	25 kg	A	13
	Trichloromethyl perchlorate	Forbidden											
	Trichlorosilane	4.3	UN1295	I	DANGEROUS WHEN WET, FLAMMABLE LIQUID, CORROSIVE.	A7, N34, T24, T26.	None	201	244	Forbidden	Forbidden	D	21, 28, 40, 49, 100
	Tricresyl phosphate *with more than 3 per cent ortho isomer.*	6.1	UN2574	II	POISON	A3, N33, N34, T8.	None	202	243	5 L	60 L	A	
	Triethyl phosphite	3	UN2323	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Triethylamine	3	UN1296	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	40
	Triethylenetetramine	8	UN2259	II	CORROSIVE	B2, T8	154	202	242	1 L	30 L	B	40
	Trifluoroacetic acid	8	UN2699	I	CORROSIVE	A3, A6, A7, B4, N3, N34, T18, T27.	None	201	242	0.5 L	2.5 L	B	12, 40, 48
	Trifluoroacetylchloride	2.2	UN3057		NONFLAMMABLE GAS, CORROSIVE.	B44	None	304	314, 315	Forbidden	25kg	D	40
	Trifluorochloroethylene, inhibited, *R1113*	2.1	UN1082		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40
	Trifluoroethane, compressed, *R143*	2.1	UN2035		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40
	Trifluoromethane	2.2	UN1984		NONFLAMMABLE GAS.		306	304	314, 315	75 kg	150 kg	A	
D	Trifluoromethane and chlorotrifluoromethane mixture (*constant boiling mixture*) (*R-503*). *See* Refrigerant gases, n.o.s..												
	Trifluoromethane, refrigerated, liquid	2.2	UN3136		NONFLAMMABLE GAS.		306	None	314, 315	50 kg	500 kg	A	
	3-Trifluoromethylaniline	6.1	UN2948	II	POISON	T14	None	202	243	5 L	60 L	A	40
	2-Trifluoromethylaniline	6.1	UN2942	III	KEEP AWAY FROM FOOD.		153	203	241	60 L	220 L	A	
	Trifluoromethyl trinitrate	Forbidden											
	Triisobutylene	3	UN2324	III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	
	Triisocyanatoisocyanurate of isophoronediisocyanate, solution, *70 per cent, by mass.*	3	UN2906	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Triisopropyl borate	3	UN2616	III	FLAMMABLE LIQUID	B1, T8, T31	150	202	242	60 L	220 L	A	
D	Trimethoxysilane	6.1	NA9269	I	POISON, FLAMMABLE LIQUID.	2, B9, B14, B32, B74, T38, T43, T45.	None	227	244	Forbidden	Forbidden	E	40
	Trimethyl borate	3	UN2416	II	FLAMMABLE LIQUID	T14	150	202	242	5 L	60 L	B	
	Trimethyl phosphite	3	UN2329	III	FLAMMABLE LIQUID	T1	150	203	242	60 L	220 L	A	
	1,3,5-Trimethyl-2,4,6-trinitrobenzene	Forbidden											
+	Trimethylacetyl chloride	8	UN2438	II	CORROSIVE, FLAMMABLE LIQUID, POISON.	2, A3, A6, A7, B3, B9, B14, B32, B74, N34, T38, T43, T45.	None	227	244	1 L	30 L	D	12, 21, 25, 40, 48
	Trimethylamine, anhydrous	2.1	UN1083		FLAMMABLE GAS		306	304	314, 315	Forbidden	150 kg	B	40
	Trimethylamine, aqueous solutions *not more than 50 per cent trimethylamine by mass.*	3	UN1297	I	FLAMMABLE LIQUID	T42	150	202	242	5 L	60 L	D	40, 41
				II	FLAMMABLE LIQUID	B1, T14	150	203	242	60 L	220 L	B	40, 41
	1,3,5-Trimethylbenzene	3	UN2325	III	FLAMMABLE LIQUID	B1, T1	None	203	242	60 L	220 L	A	
	Trimethylchlorosilane	3	UN1298	I	FLAMMABLE LIQUID, CORROSIVE.	A3, A7, B77, N34, T14, T26.	None	201	243	Forbidden	2.5 L	E	40
	Trimethylcyclohexylamine	8	UN2326	III	CORROSIVE	T2	154	203	241	5 L	60 L	A	8
	Trimethylene glycol diperchlorate	Forbidden											
	Trimethylhexamethylene diisocyanate	6.1	UN2328	III	KEEP AWAY FROM FOOD.	T8	153	203	241	60 L	220 L	B	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Trimethylhexamethylenediamines	8	UN2327	III	CORROSIVE	T7	154	203	241	5 L	60 L	A	8
	Trimethylol nitromethane trinitrate	Forbidden											
	Trinitro-meta-cresol	1.1D	UN0216	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	2,4,6-Trinitro-1,3-diazobenzene	Forbidden											
	2,4,6-Trinitro-1,3,5-triazido benzene (dry)	Forbidden											
	Trinitroacetic acid	Forbidden											
	Trinitroacetonitrile	Forbidden											
	Trinitroamine cobalt	Forbidden											
	Trinitroaniline *or* Picramide	1.1D	UN0153	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Trinitroanisole	1.1D	UN0213	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Trinitrobenzene, *dry or wetted with less than 30 per cent water, by mass.*	1.1D	UN0214	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Trinitrobenzene, wetted *with not less than 30 per cent water, by mass.*	4.1	UN1354	I	FLAMMABLE SOLID	A2, A8, A19, N41.	None	211	None	0.5 kg	0.5 kg	E	28, 36
	Trinitrobenzenesulfonic acid	1.1D	UN0386	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	E	1E, 5E, 19E
	Trinitrobenzoic acid, *dry or wetted with less than 30 per cent water, by mass.*	1.1D	UN0215	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Trinitrobenzoic acid, wetted *with not less than 30 per cent water, by mass.*	4.1	UN1355	I	FLAMMABLE SOLID	A2, A8, A19, N41.	None	211	None	0.5 kg	0.5 kg	E	28, 36
	Trinitrochlorobenzene *or* Picryl chloride	1.1D	UN0155	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Trinitroethanol	Forbidden											
	Trinitroethylnitrate	Forbidden											
	Trinitrofluorenone	1.1D	UN0387	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Trinitromethane	Forbidden											
	1,3,5-Trinitronaphthalene	Forbidden											
	Trinitronaphthalene	1.1D	UN0217	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Trinitrophenetole	1.1D	UN0218	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E
	Trinitrophenol *or* Picric acid, *dry or wetted with less than 30 per cent water, by mass.*	1.1D	UN0154	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Trinitrophenol, wetted *with not less than 30 per cent water, by mass.*	4.1	UN1344	I	FLAMMABLE SOLID	A8, A19, N41	None	211	None	1 kg	15 kg	E	28, 36, 48
	2,4,6-Trinitrophenyl guanidine (dry)	Forbidden											
	2,4,6-Trinitrophenyl nitramine	Forbidden											
	2,4,6-Trinitrophenyl trimethylol methyl nitramine trinitrate (dry).	Forbidden											
	Trinitrophenylmethylnitramine *or* Tetryl	1.1D	UN0208	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Trinitroresorcinol *or* Styphnic acid, *dry or wetted with less than 20 per cent water, or mixture of alcohol and water, by mass.*	1.1D	UN0219	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Trinitroresorcinol, wetted *or* Styphnic acid, wetted *with not less than 20 per cent water, or mixture of alcohol and water by mass.*	1.1D	UN0394	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	2,4,6-Trinitroso-3-methyl nitraminoanisole	Forbidden											
	Trinitrotetramine cobalt nitrate	Forbidden											
	Trinitrotoluene and Trinitrobenzene mixtures *or* Trinitrotoluene *or* TNT and trinitrobenzene mixtures *or* TNT and hexanitrostilbene mixtures and Hexanitrostilbene mixtures.	1.1D	UN0388	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E, 19E

	Trinitrotoluene mixtures containing Trinitrobenzene and Hexanitrostilbene *or* TNT mixtures containing trinitrobenzene and hexanitrostilbene.	1.1D	UN0389	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Trinitrotoluene *or* TNT, *dry or wetted with less than 30 per cent water, by mass.*	1.1D	UN0209	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Trinitrotoluene, wetted *with not less than 30 per cent water, by mass.*	4.1	UN1356	I	FLAMMABLE SOLID	A2, A8, A19, N41.	None	211	None	0.5 kg	0.5 kg	E	28, 36
	Tripropylamine	3	UN2260	III	FLAMMABLE LIQUID, CORROSIVE.	B1, T8	None	202	243	1 L	5 L	A	40
	Tripropylene	3	UN2057	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Tris-(1-aziridinyl)phosphine oxide, solution	6.1	UN2501	II	POISON	T8	None	202	243	5 L	60 L	A	
	Tris, bis-bifluoropamino diethoxy propane (TVOPA)	Forbidden											
	Tritonal	1.1D	UN0390	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Tungsten hexafluoride	2.3	UN2196		POISON GAS	3	None	338	None	Forbidden	Forbidden	D	40
	Turpentine	3	UN1299	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
1	Turpentine substitute	3	UN1300	I	FLAMMABLE LIQUID	T1	None	201	243	1 L	30 L	B	
				II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Undecane	3	UN2330	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Uranium hexafluoride, fissile (*containing more than 1% U-235*).	7	UN2977		RADIOACTIVE, CORROSIVE.		453	417	417			A	
	Uranium hexafluoride, *fissile excepted or non-fissile*	7	UN2978		RADIOACTIVE, CORROSIVE.		421	425	425				
	Uranium metal, pyrophoric	7	UN2979		RADIOACTIVE, SPONTANEOUSLY COMBUSTIBLE.		None	418	None			D	
	Uranyl nitrate hexahydrate solution	7	UN2980		RADIOACTIVE, CORROSIVE.		421, 425	415, 416, 417	415, 416, 417			D	
	Uranyl nitrate, solid	7	UN2981		RADIOACTIVE, OXIDIZER.		None	419	None	Forbidden	15 kg	A	
	Urea hydrogen peroxide	5.1	UN1511	III	OXIDIZER	A1, A7, A29	152	213	240	25 kg	100 kg	A	13
	Urea nitrate, *dry or wetted with less than 20 per cent water, by mass.*	1.1D	UN0220	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Urea nitrate, wetted *with not less than 20 per cent water, by mass.*	4.1	UN1357	I	FLAMMABLE SOLID	A8, A19, N41	None	211	None	1 kg	15 kg	A	28
	Urea peroxide, see Urea hydrogen peroxide												
	Valeraldehyde	3	UN2058	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
	Valeric acid, see Corrosive liquids, n.o.s.												
	Valeryl chloride	8	UN2502	II	CORROSIVE	A3, A6, A7, B2, N34, T8.	154	202	242	1 L	30 L	C	23, 40
	Vanadium oxytrichloride	8	UN2443	II	CORROSIVE	A3, A6, A7, B2, B16, N34, T8, T26.	154	202	242	Forbidden	30 L	C	40
	Vanadium pentoxide, *nonfused form*	6.1	UN2862	II	POISON		None	212	242	25 kg	100 kg	A	
	Vanadium tetrachloride	8	UN2444	I	CORROSIVE	A3, A6, A7, B4, N34, T8, T26.	None	201	242	Forbidden	2.5 L	C	8, 40
AW	Vanadium trichloride	8	UN2475	III	CORROSIVE		154	213	240	25 kg	100 kg	A	40
	Vanadium trioxide, *nonfused form*	6.1	UN2860	II	POISON		None	212	242	25 kg	100 kg	A	
	Vanadyl sulfate	6.1	UN2931	II	POISON		None	212	242	25 kg	100 kg	A	
D	Vehicles, self-propelled *including internal combustion engines or other apparatus containing an internal combustion engine or electric storage battery* (*see also* Wheel chair, electric).	9	None	III	CLASS 9		220	220	None	No limit	No limit	A	
	Very signal cartridge, see Cartridges, signal												
	Vinyl acetate, inhibited	3	UN1301	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Vinyl bromide, inhibited	2.1	UN1085		FLAMMABLE GAS		306	304	None	Forbidden	150 kg	B	40
	Vinyl butyrate, inhibited	3	UN2838	II	FLAMMABLE LIQUID	T7	150	202	242	5 L	60 L	B	
	Vinyl chloride, inhibited	2.1	UN1086		FLAMMABLE GAS	B44	306	304	314, 315	Forbidden	150 kg	B	40
	Vinyl chloroacetate	6.1	UN2589	II	POISON, FLAMMABLE LIQUID.	T14	None	202	243	5 L	60 L	A	
	Vinyl ethyl ether, inhibited	3	UN1302	II	FLAMMABLE LIQUID	A3, T14	None	201	243	1 L	30 L	E	

§ 172.101 HAZARDOUS MATERIALS TABLE—Continued

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or Division	Identification Numbers	Packing group	Label(s) required (if not excepted)	Special provisions	(8) Packaging authorizations (§ 173.***)			(9) Quantity limitations		(10) Vessel stowage requirements	
							Exceptions	Non-bulk packaging	Bulk packaging	Passenger aircraft or railcar	Cargo aircraft only	Vessel stowage	Other stowage provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Vinyl fluoride, inhibited	2.1	UN1860		FLAMMABLE GAS	B43	306	304	314, 315	Forbidden	150 kg	E	40
	Vinyl isobutyl ether, inhibited	3	UN1304	II	FLAMMABLE LIQUID	T8	150	202	242	5 L	60 L	B	
	Vinyl methyl ether, inhibited	2.1	UN1087		FLAMMABLE GAS	B44	306	304	314, 315	Forbidden	150 kg	B	40
	Vinyl nitrate polymer	Forbidden											
	Vinyl toluene, inhibited *mixed isomers*	3	UN2616	III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Vinylidene chloride, inhibited	3	UN1303	I	FLAMMABLE LIQUID	T23, T29	150	201	243	1 L	30 L	E	40
	Vinylpyridenes, inhibited	6.1	UN3073	II	POISON, FLAMMABLE LIQUID.	T8	None	212	243	5 L	60 L	B	40
	Vinyltrichlorosilane	3	UN1305	I	FLAMMABLE LIQUID, CORROSIVE.	A3, A7, B6, N34, T14, T26.	None	201	243	Forbidden	2.5 L	B	40
	Warheads, rocket *with burster or expelling charge*	1.4D	UN0370	II	EXPLOSIVE 1.4D		None	62	None	Forbidden	75 kg	A	3E, 7E, 24E
	Warheads, rocket *with burster or expelling charge*	1.4F	UN0371	II	EXPLOSIVE 1.4F		None	62	None	Forbidden	Forbidden	E	
	Warheads, rocket *with bursting charge*	1.1D	UN0286	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	3E, 7E
	Warheads, rocket *with bursting charge*	1.2D	UN0287	II	EXPLOSIVE 1.2D		None	62	None	Forbidden	Forbidden	B	3E, 7E
	Warheads, rocket *with bursting charge*	1.1F	UN0369	II	EXPLOSIVE 1.1F		None	62	None	Forbidden	Forbidden	E	
	Warheads, torpedo *with bursting charge*	1.1D	UN0221	II	EXPLOSIVE 1.1D		None	62	None	Forbidden	Forbidden	B	3E, 7E
	Water reactive substances, n.o.s., see Substances which in contact with water, *etc.*.												
AD	Wheel chair, electric (*spillable or non-spillable type batteries*).	9	None	III	CLASS 9		222	222	None	No limit	No limit	A	
	White acid, see Hydrofluoric acid mixtures												
	White asbestos, (chrysotile, actinolite, anthophyllite, tremolite).	9	UN2590	III	CLASS 9		155	216	240	200 kg	200 kg	A	34, 40
	Wood preservatives, liquid	3	UN1306	II	FLAMMABLE LIQUID	T7, T30	150	202	242	5 L	60 L	B	40
				III	FLAMMABLE LIQUID	B1, T7, T30	150	203	242	60 L	220 L	A	40
	Xenon	2.2	UN2036		NONFLAMMABLE GAS.		306	302	None	75 kg	150 kg	A	
	Xenon, refrigerated liquid (*cryogenic liquids*)	2.2	UN2591		NONFLAMMABLE GAS.		320	None	None	50 kg	500 kg	B	
	Xylenes	3	UN1307	II	FLAMMABLE LIQUID	T1	150	202	242	5 L	60 L	B	
				III	FLAMMABLE LIQUID	B1, T1	150	203	242	60 L	220 L	A	
	Xylenols	6.1	UN2261	II	POISON	T8	None	212	243	25 kg	100 kg	A	
	Xylidines, solid *or* solution	6.1	UN1711	II	POISON	T14	None	202	243	5 L	60 L	A	
	Xylyl bromide	6.1	UN1701	II	POISON	A3, A6, A7, N33.	None	340	None	Forbidden	60 L	D	40
	p-Xylyl diazide	Forbidden											
	Zinc ammonium nitrite	5.1	UN1512	II	OXIDIZER		None	212	242	5 kg	25 kg	E	
	Zinc arsenate *or* Zinc arsenite *or* Zinc arsenate and Zinc arsenite mixtures.	6.1	UN1712	II	POISON		None	212	242	25 kg	100 kg	A	
	Zinc ashes	4.3	UN1435	III	DANGEROUS WHEN WET.	A1, A19	None	213	241	25 kg	100 kg	A	
	Zinc bisulfite solution *see* Bisulfites, inorganic aqueous solutions, n.o.s..												
	Zinc bromate	5.1	UN2469	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	56, 58, 106
	Zinc chlorate	5.1	UN1513	II	OXIDIZER	A9, N34	152	212	242	5 kg	25 kg	A	56, 58, 106
	Zinc chloride, anhydrous	8	UN2331	III	CORROSIVE		None	213	240	25 kg	100 kg	A	
	Zinc chloride, solution	8	UN1840	III	CORROSIVE	T7	154	203	241	5 L	60 L	A	
	Zinc cyanide	6.1	UN1713	I	POISON		None	211	242	5 kg	50 kg	A	26

	Zinc dithionite *or* Zinc hydrosulfite	9	UN1931	III	None		155	204	240	100 kg	200 kg	A	13, 49, 102
	Zinc ethyl, see Diethylzinc												
	Zinc fluorosilicate	6.1	UN2855	III	KEEP AWAY FROM FOOD.		153	213	240	100 kg	200 kg	A	26
	Zinc hydrosulfite, *see* Zinc dithionite												
	Zinc muriate solution, see Zinc chloride, solution												
	Zinc nitrate	5.1	UN1514	II	OXIDIZER		152	212	240	5 kg	25 kg	A	
	Zinc permanganate	5.1	UN1515	II	OXIDIZER		152	212	242	5 kg	25 kg	D	56, 58, 69, 106, 107
	Zinc peroxide	5.1	UN1516	II	OXIDIZER		152	212	242	5 kg	25 kg	A	13, 75, 106
	Zinc phosphide	4.3	UN1714	I	DANGEROUS WHEN WET, POISON.	A19, N40	None	211	None	Forbidden	15 kg	E	40, 85
	Zinc powder, *or* Zinc dust	4.3	UN1436	I	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.	A19, N40	None	211	242	Forbidden	15kg	A	
				II	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.	A19	None	212	242	15 kg	50 kg	A	
				III	DANGEROUS WHEN WET, SPONTANEOUSLY COMBUSTIBLE.		None	213	242	25kg	100kg	A	
	Zinc resinate	4.1	UN2714	III	FLAMMABLE SOLID	A1	151	213	240	25 kg	100 kg	A	
	Zinc selenate, *see* Selenates *or* Selenites												
	Zinc selenite, *see* Selenates *or* Selenites												
	Zinc silicofluoride, see Zinc fluorosilicate												
	Zirconium, dry, *coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)*	4.1	UN2858	III	FLAMMABLE SOLID	A1	151	213	240	25 kg	100 kg	A	
	Zirconium, dry, *finished sheets, strip or coiled wire*	4.2	UN2009	III	SPONTANEOUSLY COMBUSTIBLE.	A1, A19	None	213	240	25 kg	100 kg	D	
	Zirconium hydride	4.1	UN1437	II	FLAMMABLE SOLID	A19, A20, N34	None	212	240	15 kg	50 kg	E	
	Zirconium nitrate	5.1	UN2728	III	OXIDIZER	A1, A29	152	213	240	25 kg	100 kg	A	
	Zirconium picramate, *dry or wetted with less than 20 per cent water, by mass.*	1.3C	UN0236	II	EXPLOSIVE 1.3C		None	62	None	Forbidden	Forbidden	B	1E, 5E
	Zirconium picramate, wetted *with not less than 20 per cent water, by mass.*	4.1	UN1517	I	FLAMMABLE SOLID	N41	None	211	None	1 kg	15 kg	D	28, 36
	Zirconium powder, dry	4.2	UN2008	I	SPONTANEOUSLY COMBUSTIBLE.		None	211	242	Forbidden	Forbidden	D	
				II	SPONTANEOUSLY COMBUSTIBLE.	A19, A20, N5, N34.	None	212	241	15 kg	50 kg	D	
				III	SPONTANEOUSLY COMBUSTIBLE.		None	213	241	25kg	100kg	D	
	Zirconium powder, wetted *with not less than 25 per cent water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced, particle size less than 840 microns.*	4.1	UN1358	II	FLAMMABLE SOLID	A19, A20, N34	None	212	241	15 kg	50 kg	E	
	Zirconium scrap	4.2	UN1932	III	SPONTANEOUSLY COMBUSTIBLE.	N34	None	213	240	Forbidden	Forbidden	D	
D	Zirconium sulfate	8	NA9163	III	CORROSIVE	N34	None	213	240	50 kg	No limit	A	
	Zirconium suspended in a liquid	3	UN1308	II	FLAMMABLE LIQUID		None	202	242	Forbidden	60 L	B	
	Zirconium tetrachloride	8	UN2503	III	CORROSIVE		154	213	240	25 kg	100 kg	A	

33. In § 172.102, the second sentence in paragraph (a) is revised and paragraphs (a)(1) and (2) are added, and in paragraph (c), the following special provisions are added, revised, or removed as indicated:

a. In paragraph (c)(1), Special Provisions 7, 10, 15, 16, 18, and 20 are added; and Special Provisions 1, 2, 3, 4, 5, 8, 13, 53, 110, 112, and 114 are revised.

b. In paragraph (c)(2), Special Provisions A12 and A34 are added.

c. In paragraph (c)(3), Special Provisions B3, B10, B46, and B62 are added; Special Provisions B2, B4, B5, B11, B14, B16, B26, B30, B31, B32, B33, B37, B58, B59, B66, B67, B68, B74, and B79 are revised; and Special Provisions B13, B34, B35, B38, B40, B51, B73 and B75 are removed.

d. In paragraph (c)(5), Special Provisions N9, N10, N11, N20, N81, and N82 are added and Special Provision N45 is revised.

e. In paragraph (c)(7)(i) table, Special Provision T22 is added; in paragraph (c)(7)(ii), Special Provisions T28, T34, and T37 are added, and Special Provisions T29, T30, and T38 are revised.

§ 172.102 Special provisions.

(a) * * * When a special provision specifies packaging or packaging requirements—

(1) The special provision is in addition to the standard requirements for all packagings prescribed in § 173.24 of this subchapter and any other applicable packaging requirements in subparts A and B of part 173 of this subchapter; and

(2) To the extent a special provision imposes limitations or additional requirements on the packaging provisions set forth in Column 8 of the § 172.101 Table, packagings must conform to the requirements of the special provision.

* * * * *

(c) * * *

(1) * * *

Code/Special Provisions

1 This material is poisonous by inhalation (see § 171.8 of this subchapter) in Hazard Zone A (see § 173.116(a) or § 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

2 This material is poisonous by inhalation (see § 171.8 of this subchapter) in Hazard Zone B (see § 173.116(a) or § 173.133(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

3 This material is poisonous by inhalation (see § 171.8 of this subchapter) in Hazard Zone C (see § 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

4 This material is poisonous by inhalation (see § 171.8 of this subchapter) in Hazard Zone C (see § 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

5 If this material meets the definition for a material poisonous by inhalation (see § 171.8 of this subchapter), a shipping name must be selected which identifies the inhalation hazard, in Division 2.3 or Division 6.1, as appropriate.

* * * * *

7 An ammonium nitrate fertilizer is a fertilizer formulation, containing 90% or more ammonium nitrate and no more than 0.2% organic combustible material (calculated as carbon), which does not meet the definition and criteria of a Class 1 (explosive) material (See § 173.50 of this subchapter).

8 A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid *or* solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies.

* * * * *

10 An ammonium nitrate mixed fertilizer is a fertilizer formulation, containing less than 90% ammonium nitrate and other ingredients, which does not meet the definition and criteria of a Class 1 (explosive) material (See § 173.50 of this subchapter).

* * * * *

13 The words "Inhalation Hazard" shall be entered on each shipping paper in association with the shipping description, shall be marked on each non-bulk package in association with the proper shipping name and identification number, and shall be marked on two opposing sides of each bulk package. Size of marking on bulk package must conform to § 172.302(b) of this subchapter. The requirements of §§ 172.203(m) and 172.505 of this subchapter do not apply.

* * * * *

15 Chemical kits include boxes, cases, etc., containing small amounts of various compatible dangerous goods which are used for medical, analytical or testing purposes and for which exceptions are provided in this subchapter. Inner packagings must not exceed 250 mL for liquids or 250 g for solids and must be protected from other materials in the kit. For transportation by aircraft, any dangerous goods forbidden in passenger aircraft may not be included in these kits. Kits must be packed in wooden boxes (4C1, 4C2), plywood boxes (4D), reconstituted wood boxes (4F), fiberboard boxes (4G) or plastic boxes (4H1, 4H2) which must be marked 'Chemical kits.' Each package shall be classified for the material contained therein; if two or more different classes of material are present the class of the package shall be determined in accordance with § 173.2a of this subchapter. Each package must be labeled according to each substance contained in the package; this includes the primary hazard label and any subsidiary risk labels applicable to each individual substance within the kit. The total quantity of dangerous goods in any one kit must not exceed either 1 L or 1 kg. The total quantity of dangerous goods in any one package must not exceed either 10 L or 10 kg. The packing group assigned to the kit as a whole must be the most stringent packing group assigned to any individual substance contained in the kit.

16 This description applies only to materials that have been classed as Division 1.3.

* * * * *

18 This article and its packaging must be approved by the Associate Administrator for Hazardous Materials Safety.

20 The transport of this substance, when in concentrations of greater than 10% nitroglycerin, is prohibited. Concentrations of below 5% nitroglycerin may be transported as a Class 3 material: see UN 1204 and UN 3064.

* * * * *

53 Packages of these materials must bear the subsidiary risk label, "EXPLOSIVE", unless otherwise provided in this subchapter or through an approval issued by the Associate Administrator for Hazardous Materials Safety, or the competent authority of the country of origin. A copy of the approval shall accompany the shipping papers.

* * * * *

110 Cartridges containing 3.2 grams or less of deflagrating (propellant) explosives installed in a fire extinguisher are not subject to the requirements of this subchapter.

* * * * *

112 "Cartridges, small arms" and "Cartridges, power devices (which are used to project fastening devices)" which have been classed in Division 1.4 Compatibility Group S (1.4S) may be reclassed and offered for domestic transportation as ORM-D material if they are offered for transportation and transported in accordance with the limitations and packaging requirements of § 173.230 of this subchapter.

* * * * *

114 Jet perforating guns, charged, oil well, without detonator may be reclassed to Division 1.4 Compatibility Group D (1.4D) if the following conditions are met:

a. The total weight of the explosive contents of the shaped charges assembled in the guns does not exceed 90.5 kg (200 pounds) per vehicle; and

b. The guns are packaged in accordance with Packing Method US006 as specified in § 173.62 of this subchapter.

* * * * *

(2) * * *

Code/Special Provisions

* * * * *

A12 The quantity of lithium contained in any piece of equipment must not exceed 12 grams per cell and 500 grams per battery for cargo aircraft. No piece of equipment may contain more than 5 kilograms of lithium batteries. Lithium batteries are forbidden for transportation by passenger-carrying aircraft unless approved by the Associate Administrator for Hazardous Materials Safety.

* * * * *

A34 Aerosols containing a corrosive liquid in Packing Group II charged with a gas

are not permitted for transportation by aircraft.

(3) * * *

Code/Special Provisions

* * * * *

B2 MC 306 and DOT 406 cargo tanks are not authorized.

B3 MC 306 and DOT 406 cargo tanks and DOT 57 portable tanks are not authorized.

B4 AAR 206 tank car tanks and MC 306 and DOT 406 cargo tanks are not authorized.

B5 Only ammonium nitrate solutions with 35 percent or less water that will remain completely in solution at a maximum lading temperature of 116°C (240°F) are authorized for the transport in the following bulk packagings: DOT 103 ALW, 111A60 ALW tank car tanks and MC 307, MC 312, DOT 407 and DOT 412 cargo tanks with at least 172 kPa (25 psig) design pressure. The packaging shall be designed for a working temperature of at least 121°C (250°F). Only Specifications MC 304, MC 307 or DOT 407 cargo tank motor vehicles are authorized for transportation by vessel.

* * * * *

B10 AAR 206 tank car tanks, MC 306 and DOT 406 cargo tanks, and DOT 57 portable tanks are not authorized.

B11 Tank car tanks must have a test pressure of at least 2,068.5 kPa (300 psi). Cargo and portable tanks must have a design pressure of at least 1,207 kPa (175 psig).

* * * * *

B14 Each tank, except a multi-unit tank car tank, must be insulated with at least 100 mm (3.9 inches) of cork or other suitable insulation material of sufficient thickness that the overall thermal conductance at 15.5°C (60°F) is not more than 1.533 kilojoules per hour per square meter per degree celsius (0.075 Btu per hour per square foot per degree Fahrenheit) temperature differential. The exterior surface of a carbon steel tank and the interior surface of a carbon steel jacket must be given a protective coating. The jacket must be flashed around all openings so as to be weather-tight.

* * * * *

B16 The lading must be completely covered with nitrogen, inert gas or other inert materials.

* * * * *

B26 Tanks must be insulated. Insulation must be at least 100 mm (3.9 inches) except that the insulation thickness may be reduced to 51 mm (2 inches) over the exterior heater coils. Interior heating coils are not authorized. The packaging may not be loaded with a material outside of the packaging's design temperature range. In addition, the material must be covered with an inert gas or filled with water to the tank's capacity. After unloading, the material must also be covered with an inert gas or filled with water to the entire capacity of the tank.

* * * * *

B30 MC 312, MC 330, MC 331 and DOT 412 cargo tanks and DOT 51 portable tanks must be made of stainless steel, except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 7.62 mm (0.300 inch) or the thickness required for a tank with a design pressure at least equal to 1.5 times the vapor pressure of the lading at 46°C (115° F). In addition, MC 312 and DOT 412 cargo tank motor vehicles must:

a. Be ASME Code (U) stamped for 100% radiography of all pressure-retaining welds;

b. Have accident damage protection which conforms with § 178.345–8 of this subchapter;

c. Have a MAWP or design pressure of at least 87 psig; and

d. Have a bolted ASA manway cover.

B31 Bromine tank cars built prior to December 31, 1990 to DOT105A500W which have been stencilled and valved as DOT105A300W may continue in service.

B32 MC 312, MC 330, MC 331 DOT 412 cargo tanks and DOT 51 portable tanks must be made of stainless steel, except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(b) of this subchapter. Thickness of stainless steel for tank shell and heads for cargo tanks and portable tanks must be the greater of 6.35 mm (0.250 inch) or the thickness required for a tank with a design pressure at least equal to 1.3 times the vapor pressure of the lading at 46°C (115° F). In addition, MC 312 and DOT 412 cargo tank motor vehicles must:

a. Be ASME Code (U) stamped for 100% radiography of all pressure-retaining welds;

b. Have accident damage protection which conforms with § 178.345–8 of this subchapter;

c. Have a MAWP or design pressure of at least 87 psig; and

d. Have a bolted ASA manway cover.

B33 MC 300, MC 301, MC 302, MC 303, MC 305, MC 306, and DOT 406 cargo tanks equipped with a 1 psig normal vent used to transport gasoline are subject to the following requirements. Based on the volatility class determined by using ASTM D439 and the Reid vapor pressure (RVP) of the particular gasoline, the maximum lading pressure and maximum ambient temperature permitted during the loading of gasoline may not exceed that listed in Table I.

TABLE I—MAXIMUM AMBIENT TEMPERATURE—GASOLINE

ASTM D439 volatility class	Maximum lading and ambient temperature (see note 1)
A (RVP < = 9.0 psia)	131° F
B (RVP < = 10.0 psia)	124° F
C (RVP < = 11.5 psia)	116° F
D (RVP < = 13.5 psia)	107° F
E (RVP < = 15.0 psia)	100° F

Note 1: Based on maximum lading pressure of 1 psig at top of cargo tank.

* * * * *

B37 The amount of nitric oxide charged into any tank car tank may not exceed 1,379 kPa (200 psig) at 21° C (70° F).

* * * * *

B48 Portable tanks in sodium metal service may be visually inspected at least once every 5 years instead of being retested, hydrostatically. Date of the visual inspection must be stenciled on the tank near the other required markings.

* * * * *

B58 Notwithstanding the provisions of § 173.244(a) of this subchapter, only DOT 105J300W tank car tanks are authorized. Class 106 and 110 multi-unit tank car tanks are also authorized.

B59 AAR Specification 207A40W, 207A40W6, 207A48W, 207A60W, 207A80W tank car tanks are also authorized provided that the lading is covered in a nitrogen blanket.

* * * * *

B66 Each tank must be equipped with gas tight valve protection caps. Outage must be sufficient to prevent tanks from becoming liquid full at 55°C (130°F). Specification 110A500W tanks must be stainless steel.

B67 Tanks must be lagged with not less than a 100 mm (3.9 inch) thickness of cork. All valves and fittings must be protected by a securely attached cover made of metal not subject to deterioration by the lading, and all valve openings, except safety valve, must be fitted with screw plugs or caps to prevent leakage in the event of valve failure.

B68 Sodium must be in a molten condition when loaded and allowed to solidify before shipment. Outage must be at least 5 percent at 98°C (208°F). Bulk packagings must have exterior heating coils fusion welded to the tank shell which have been properly stress relieved. The only tank car tanks authorized are Class DOT 105 tank cars having a test pressure of 2069 kPa (300 psig) or greater.

* * * * *

B74 Notwithstanding the provisions of §§ 173.243(a) and 173.244(a) of this subchapter, only the following tank car tanks are authorized: DOT 105J300W, 112J340W, 112T340W, 114J340W, 114T340W and 105J300ALW tank car tanks; and Class DOT 106 and 110 multi-unit tank car tanks.

* * * * *

B79 Tank car tanks must have head puncture resistance and thermal protection in accordance with §§ 179.105–4 and 179.105–5 of this subchapter for tanks built before April 1, 1989.

* * * * *

B82 Cargo tanks and portable tanks are not authorized.

* * * * *

(5) * * *

Code/Special Provisions

* * * * *

N9 If the substance is impregnated with less than 5% oil, it is excepted from the labeling requirements of subpart D of this part and the packaging tests of subpart M of part 178 of this subchapter.

N10 Lighters and their inner packagings, which have been approved by the Associate Administrator for Hazardous Materials Safety (see § 173.21(i) of this subchapter), must be packaged in one of the following outer packagings at the Packing Group II

level: 4C1 or 4C2 wooden boxes; 4D plywood boxes; 4F reconstituted wood boxes; 4G fiberboard boxes; or 4H1 or 4H2 plastic boxes.

N11 This material is excepted for the specification packaging requirements of this subchapter if the material is packaged in strong, tight non-bulk packaging meeting the requirements of subparts A and B of Part 173 of this subchapter.

* * * * *

N20 A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle.

* * * * *

N45 Copper cartridges are authorized as inner packagings if the hazardous material is not in dispersion.

* * * * *

N81 Polychlorinated biphenyl items, as defined in 40 CFR 761.3, for which specification packagings are impractical, may be packaged in non-specification packagings meeting the general packaging requirements of subparts A and B of part 173 of this subchapter. Alternatively, the item itself may be used as a packaging if it meets the general packaging requirements of subparts A and B of part 173 of this subchapter.

N82 See § 173.306 of this subchapter for classification criteria for flammable aerosols.

* * * * *

(7) * * *

(i) * * *

IM TANK CONFIGURATIONS

Code	IM tank type	Minimum test pressure (bars)	Bottom outlets	Pressure relief devices
(1)	(2)	(3)	(4)	(5)
*	*	*	*	*
T22	101	6	§ 173.32c(g)(1)	§ 178.270–11(a)(1)(2)
*	*	*	*	*

(ii) * * *

Code/Special Provisions

* * * * *

T28 IM portable tanks in sodium metal service are not required to be hydrostatically retested.

T29 The lading must be completely covered with nitrogen, inert gas or other inert materials.

T30 IM 102 portable tanks without bottom openings or with bottom openings conforming to § 173.32c(g)(1) of this subchapter are authorized for a hazardous material with a flash point of 0°C (32°F) or greater and a vapor pressure not greater than 65.5 kPa (9.5 psia) at 65.6°C (150°F).

* * * * *

T34 The IM Tank authorization is limited to aqueous solutions containing not more than 40% dimethylamine.

* * * * *

T37 IM portable tanks are only authorized for the shipment of hydrogen peroxide solutions in water containing 72 percent or less hydrogen peroxide by weight. Pressure relief devices shall be designed to prevent the entry of foreign matter, the leakage of liquid and the development of any dangerous excess pressure. In addition, the tank shall be designed so that internal surfaces may be effectively cleaned and passivated. Each tank must be equipped with pressure relief devices conforming to the following requirements:

Concentration of hydrogen peroxide solution	Total venting capacity in standard cubic feet per hour (S.C.F.H.) per pound of hydrogen peroxide solution
52 percent or less	11
Over 52 percent but not greater than 60 percent	22
Over 60 percent but not greater than 72 percent	32

T38 Each tank, except a multi-unit tank car tank, must be insulated with at least 100 mm (3.9 inches) of cork or other suitable insulation material of sufficient thickness that the overall thermal conductance at 15.5°C (60°F) is not more than 1.533 kilojoules per hour per square meter per degree celsius (0.075 Btu per hour per square foot per degree Fahrenheit) temperature differential. The exterior surface of a carbon steel tank and the interior surface of a carbon steel jacket must be given a protective coating. The jacket must be flashed around all openings so as to be weather-tight.

* * * * *

§ 172.102 [Amended]

34. In addition, in § 172.102, the following changes are made:

a. In paragraph (b) introductory text, the word "may" is removed.

b. *In paragraph (c)(1), in special* provision 109, in the first sentence, the wording "Except as provided in § 173.63(d) of this subchapter," is removed and the word "rocket" is revised to read "Rocket".

c. In paragraph (c)(1), in special provision 111, "(1.)A)" is revised to read "(1.1A)".

d. In paragraph (c)(7) introductory text, the wording "the IM Tank Table" is revised to read "IM Tank Configurations".

35. In § 172.202, paragraphs (a)(2), (a)(4), and (a)(5) are revised to read as follows:

§ 172.202 Description of hazardous material on shipping papers.

(a) * * *

(1) * * *

(2) The hazard class or division prescribed for the material as shown in Column 3 of the § 172.101 Table (class names or subsidiary hazard class number may be entered following the numerical hazard class, or following the basic description). The hazard class need not be included for the entry "Combustible liquid, n.o.s.";

(3) * * *

(4) The packing group, in Roman numerals, prescribed for the material in Column 5 of the § 172.101 Table, if any. The packing group may be preceded by the letters "PG" (e.g., "PG II"); and

(5) Except for empty packagings (see § 173.29 of this subchapter), cylinders for Class 2 (compressed gases) materials, and bulk packagings, the total quantity (by net or gross mass, capacity, or as otherwise appropriate), including the unit of measurement, of the hazardous material covered by the description (e.g., "800 lbs", "55 gal.", "3629 kg", or "208 L"). For cylinders for Class 2 (compressed gases) materials and bulk packagings, some indication of total quantity must be shown (e.g., "10 cylinders" or "1 cargo tank").

* * * * *

36. In § 172.203, paragraphs (d)(1)(i) through (d)(1)(v) are redesignated as paragraphs (d)(2) through (d)(6), paragraphs (d)(1)(vi) introductory text and (d)(1)(vi)(A) through (D) are redesignated as paragraphs (d)(7) introductory text and (d)(7)(i) through (iv), paragraphs (d)(1)(vii) and (d)(1)(viii) are redesignated as paragraphs (d)(8) and (d)(9), introductory text is added to paragraph (d) following the heading and paragraph (d)(1) is revised, and paragraphs (i), (k)(3) and (m)(1), (m)(2) and (m)(3) are revised, to read as follows:

§ 172.203 Additional description requirements.

* * * * *

(d) *Radioactive material.* The description for a shipment of a Class 7 (radioactive) material must include the following additional entries as appropriate:

(1) The words "RADIOACTIVE MATERIAL" unless these words are contained in the proper shipping name.

* * * * *

(i) *Transportation by water.* Each shipment by water must have the following additional shipping paper entries:

(1) Identification of the type of packagings such as barrels, drums, cylinders, and boxes.

(2) The number of each type of package including those in a freight container or on a pallet.

(3) The gross mass of each type of package or the individual gross mass of each package.

* * * * *

(k) * * *

(3) Proper shipping names for which the provisions of this paragraph apply are as follows:

Alcohols, toxic, n.o.s.
Articles, explosive, n.o.s.
Caustic alkali liquids, n.o.s.
Combustible liquid, n.o.s.
Compounds, cleaning liquid, *corrosive*
Compounds, cleaning liquid, *flammable*
Compounds, tree *or* weed killing, liquid, *corrosive*
Compounds, tree *or weed killing, liquid, flammable*
Compounds, tree *or* weed killing, liquid, *poisonous*
Components, explosive train, n.o.s.
Compressed *or* Liquefied gases, n.o.s.
Compressed *or* Liquefied gases, flammable, n.o.s.
Compressed *or* Liquefied gases, flammable, toxic, n.o.s.
Compressed or Liquefied gases, toxic, n.o.s.
Contrivances, water-activated
Corrosive liquids, flammable, n.o.s.
Corrosive liquids, n.o.s.
Corrosive liquids, oxidizing, n.o.s.
Corrosive liquids, poisonous, n.o.s.
Corrosive liquids, which in contact with water emit flammable gases, n.o.s.
Corrosive solids, flammable, n.o.s.
Corrosive solids, n.o.s.
Corrosive solids, oxidizing, n.o.s.
Corrosive solids, poisonous, n.o.s.
Corrosive solids, self heating, n.o.s.
Corrosive solids, which in contact with water emit flammable gases, n.o.s.
Disinfectants, corrosive, liquid, n.o.s.
Disinfectants, liquid, n.o.s.
Disinfectants, solids, n.o.s.
Dispersant gas, n.o.s.
Dyes, liquid, n.o.s. *or* Dye intermediates, liquid, n.o.s.
Dyes, solid, n.o.s. *or* Dye intermediates, solid, n.o.s.
Environmentally hazardous substances, liquid, n.o.s.
Environmentally hazardous substances, solid, n.o.s.
Flammable liquids, corrosive, n.o.s.
Flammable liquids, n.o.s.
Flammable liquids, poisonous, n.o.s.
Flammable solids, corrosive, n.o.s.
Flammable solids, n.o.s.
Flammable solids, poisonous, n.o.s.
Halogenated irritating liquids, n.o.s.
Hazardous waste, liquid, n.o.s.
Hazardous waste, solid, n.o.s.
Infectious substances, affecting animals
Infectious substances, affecting humans
Insecticide gases, *flammable,* n.o.s.
Insecticide gases, n.o.s.
Insecticide gases, toxic, n.o.s.
Medicines, n.o.s.
Metal powders, flammable, n.o.s.
Organic peroxide type B, liquid
Organic peroxide type B, liquid, temperature controlled
Organic peroxide type B, solid
Organic peroxide type B, solid, temperature controlled
Organic peroxide type C, liquid
Organic peroxide type C, liquid, temperature controlled
Organic peroxide type C, solid
Organic peroxide type C, solid, temperature controlled
Organic peroxide type D, liquid
Organic peroxide type D, liquid, temperature controlled
Organic peroxide type D, solid
Organic peroxide type D, solid, temperature controlled
Organic peroxide type E, liquid
Organic peroxide type E, liquid, temperature controlled
Organic peroxide type E, solid
Organic peroxide type E, solid, temperature controlled
Organic peroxide type F, liquid
Organic peroxide type F, liquid, temperature controlled
Organic peroxide type F, solid
Organic peroxide type F, solid, temperature controlled
Other regulated substances, liquid, n.o.s.
Other regulated substances, solid, n.o.s.
Oxidizing substances, liquid, corrosive, n.o.s.
Oxidizing substances, liquid, n.o.s.
Oxidizing substances, liquid, poisonous, n.o.s.
Oxidizing substances, solid, corrosive, n.o.s.
Oxidizing substances, solid, n.o.s.
Oxidizing substances, solid, poisonous, n.o.s.
Pesticides, liquid, flammable, toxic, n.o.s.
Pesticides, liquid, toxic, flammable, n.o.s.
Pesticides, liquid, toxic, n.o.s.
Pesticides, solid, toxic, n.o.s.
Poisonous liquids, corrosive, n.o.s.
Poisonous liquids, flammable, n.o.s.
Poisonous liquids, n.o.s.
Poisonous liquids, oxidizing, n.o.s.
Poisonous liquids, which in contact with water emit flammable gases, n.o.s.
Poisonous solids, corrosive, n.o.s.
Poisonous solids, flammable, n.o.s.
Poisonous solids, n.o.s.
Poisonous solids, oxidizing, n.o.s.
Poisonous solids, self-heating, n.o.s.
Poisonous solids, which in contact with water emit flammable gases, n.o.s.
Pyrophoric liquids, n.o.s.
Pyrophoric solids, n.o.s.
Pyrophoric metals, n.o.s. *or* Pyrophoric alloys, n.o.s.
Refrigerant gas, n.o.s.
Refrigerant gases, n.o.s.
Rodenticides, n.o.s.
Samples, explosive (*other than initiating explosives*)
Self-heating substances, solid, corrosive, n.o.s.
Self-heating substances, solid, n.o.s.
Self-heating substances, solid, poisonous, n.o.s.
Self-reactive substances, Sample, n.o.s.
Self-reactive substances, Trial quantities, n.o.s.
Substances, explosive, n.o.s.
Substances, explosive, very insensitive (substances, EVI) n.o.s.".
Substances, which in contact with water emit flammable gases, liquid, corrosive, n.o.s.
Substances, which in contact with water emit flammable gases, liquid, n.o.s.
Substances, which in contact with water emit flammable gases, liquid, poisonous, n.o.s.
Substances, which in contact with water emit flammable gases, solid, corrosive, n.o.s.
Substances, which in contact with water emit flammable gases, solid, n.o.s.
Substances, which in contact with water emit flammable gases, solid, oxidizing, n.o.s.
Substances, which in contact with water emit flammable gases, solid, poisonous, n.o.s.
Substances, which in contact with water emit flammable gases, solid, self-heating, n.o.s.
Substances, which in contact with water emit flammable gases, solid, flammable n.o.s.
Tear gas substances, n.o.s. liquid *or* solid

* * * * *

(m) * * *

(1) If a liquid or solid material in a package meets the definition of a Division 6.1, Packing Group I or II, according to this subchapter, and the fact that it is a poison is not disclosed in the shipping name, the word "Poison" shall be entered on the shipping paper in association with the shipping description.

(2) If the technical name of the compound or principal constituent that causes a material to meet the definition of Division 6.1, Packing Group I or II (as defined in § 173.132(a) of this subchapter), or Division 2.3 (as defined

in § 173.115(c) of this subchapter), is not included in the proper shipping name for the material, the technical name shall be entered on the shipping paper in the manner prescribed in paragraph (k) of this section.

(3) For materials which are poisonous by inhalation (see § 171.8 of this subchapter), the words "Poison-Inhalation Hazard" and the words "Zone A", "Zone B", "Zone C", or "Zone D", for gases or "Zone A" or "Zone B" for liquids, as appropriate, shall be entered on the shipping paper immediately following the shipping description. The word "Poison" need not be repeated if it otherwise appears in the shipping description.

§ 172.203 [Amended]

37. In addition, in § 172.203, the following changes are made:

a. In paragraph (c)(2), in the second sentence, "3" is revised to read "6.1"; and "PG" is removed both places it appears.

b. In paragraph (k) introductory text, "PG" is removed both places it appears; and the last sentence is revised to read "For example, 'Organic peroxide type B, solid, 5.2, UN 3102 (dibenzoyl peroxide, 52–100%)' or 'Organic peroxide type E, solid, 5.2, UN 3108 (dibenzoyl peroxide, paste, <52%)'."

c. In paragraph (k)(1), in the second sentence, "compound" is revised to read "mixtures" both places it appears; and "PG" is removed both places it appears.

d. In paragraphs (k)(2) and (k)(4)(iii), "PG" is removed each place it appears.

e. In paragraph (k)(4)(ii), the reference "§ 172.101(c)(12)" is revised to read "§ 172.101(c)(11)".

f. In paragraph (k)(4)(iv), the last sentence is revised to read "For example: 'Carbamate pesticides, liquid, flammable, toxic, n.o.s., *flash point less than 23°C* (contains Xylene) 3, 6.1, UN 2758, II'."

38. In § 172.302, paragraphs (b)(2) and (b)(3) are revised, and a new paragraph (f) is added to read as follows:

§ 172.302 General marking requirements for bulk packagings.

* * * * *

(b) * * *

(1) * * *

(2) 25 mm (one inch) for portable tanks with capacities of less than 3,785 L (1,000 gallons); and

(3) 50 mm (2.0 inches) for cargo tanks and other bulk packages.

* * * * *

(f) A bulk packaging marked prior to October 1, 1991, in conformance to the regulations of this subchapter in effect on September 30, 1991, need not be remarked if the key words of the proper shipping name are identical to those currently specified in the § 172.101 Table. For example, a tank car marked "ANHYDROUS AMMONIA" need not be remarked "ANHYDROUS AMMONIA, LIQUEFIED".

39. In § 172.303, the introductory text of paragraph (b) is republished, and paragraph (b)(3) is added to read as follows:

§ 172.303 Prohibited marking.

* * * * *

(b) This section does not apply to—

(1) * * *

(2) * * *

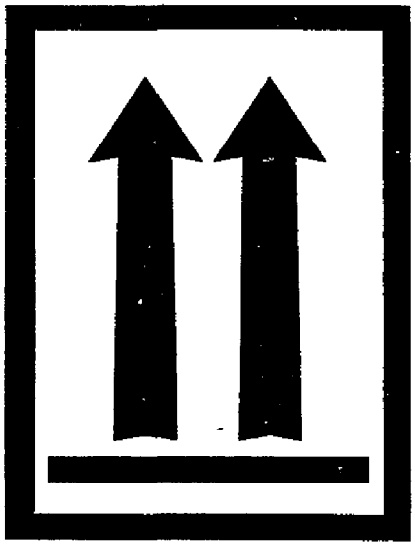
(3) The marking of a shipping name on a package when the name describes a material not regulated under this subchapter.

40. In § 172.312, paragraph (a)(2) is revised, and paragraphs (c)(4) and (c)(5) are added to read as follows:

§ 172.312 Liquid hazardous materials in non-bulk packagings.

(a) * * *

(2) Legibly marked, with package orientation markings that conform pictorially to ISO Standard 780–1985, on two opposite vertical sides of the package with the arrows pointing in the correct upright direction.



Package orientation

(b) * * *

(c) * * *

(4) Liquids contained in manufactured articles (e.g., alcohol or mercury in thermometers) which are leak-tight in all orientations.

(5) A non-bulk package with hermetically-sealed inner packagings.

41. In § 172.313, paragraph (a) is revised to read as follows:

§ 172.313 Poisonous hazardous materials.

(a) For materials poisonous by inhalation (see § 171.8 of this subchapter), the package shall be marked "Inhalation Hazard" in association with the required labels or placards, as appropriate, or shipping name, when required. (See § 172.302(b) of this subpart for size s.

* * * * *

42. In § 172.316, the section heading is revised to read as follows:

§ 172.316 Packagings containing materials classed as ORM–D.

43. Section 172.320 is revised to read as follows:

§ 172.320 Explosive hazardous materials.

(a) Except as otherwise provided in paragraphs (b), (c), (d) and (e) of this section, each package containing a Class 1 material must be marked with the EX-number for each substance, article or device contained therein.

(b) Except for fireworks approved in accordance with § 173.56(j) of this subchapter, a package of Class 1 materials may be marked, in lieu of the EX-number required by paragraph (a) of this section, with a national stock number issued by the Department of Defense or identifying information required by regulations for commercial explosives specified in 27 CFR part 55, if the national stock number or identifying information can be specifically associated with the EX-number assigned.

(c) When more than five different Class 1 materials are packed in the same package, the package may be marked with only five of the EX-numbers, national stock numbers, product codes, or combination thereof.

(d) The requirements of this section do not apply if the EX-number, product code or national stock number of each explosive item described under a proper shipping description is shown in association with the shipping description required by § 172.202(a) of this part. Product codes and national stock numbers must be traceable to the specific EX-number assigned by the Associate Administrator for Hazardous Materials Safety.

(e) The requirements of this section do not apply to the following Class 1 materials:

(1) Those being shipped to a testing agency in accordance with § 173.56(d) of this subchapter;

(2) Those being shipped in accordance with § 173.56(e) of this subchapter, for the purposes of developmental testing;

(3) Those which meet the requirements of § 173.56(h) of this subchapter and therefore are not subject to the approval process of § 173.56 of this subchapter;

(4) Until October 1, 1993, those which are shipped under § 171.19 of this subchapter; and

(5) Those that are transported in accordance with § 173.56(c)(2) of this subchapter and, therefore, are covered by a national security classification currently in effect.

§ 172.326 [Amended]

44. In § 172.326, the following changes are made:

a. In paragraph (c)(1), the wording "containing a hazardous material" is added immediately after "portable tank" and before "must be marked".

b. In paragraph (c)(2), the wording "containing a hazardous material" is added immediately after "portable tank" and before "to a motor carrier".

§ 172.328 [Amended]

45. In § 172.328, in paragraph (c) introductory text, the paragraph heading is revised to read "*QT/NQT markings.*".

46. In § 172.330, paragraphs (a)(1) and (a)(2) are revised to read as follows:

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

(a) * * *

(1) In a tank car unless the tank car is:

(i) Marked on each side, when required by a special provision to the § 172.101 Table or Part 173 of this subchapter, with the proper shipping name specified for the material in the § 172.101 Table, or with a common name authorized for the material in this subchapter (e.g., "Refrigerant Gas"); and

(ii) Marked on each side and each end, as required by § 172.302 of this subpart, with the identification number specified for the material in the § 172.101 Table.

(2) In a multi-unit tank car tank, unless the tank is marked on two opposing sides, in letters and numerals no less than 50 mm (2.0 inches) high—

(i) With the proper shipping name specified for the material in the § 172.101 Table or with a common name authorized for the material in this subchapter (e.g., "Refrigerant Gas"); and

(ii) With the identification number specified for the material in the § 172.101 Table, unless marked in accordance with §§ 172.302(a) and 172.332 of this subpart.

* * * * *

§ 172.332 [Amended]

47. In § 172.332, in paragraph (a), the reference "172.302," is added immediately after "§§" and before "172.328".

§ 173.334 [Amended]

48. In § 173.334, in paragraph (a), the wording "or DANGEROUS placard." is revised to read "DANGEROUS, or subsidiary hazard placard."

§ 172.336 [Amended]

49. In § 172.336, the following changes are made:

a. The section heading is revised to read as follows:

§ 172.336 Identification numbers; special provisions.

b. In paragraph (b)(1), "100 cm" is revised to read "100 mm".

c. In paragraphs (c)(2) and (c)(3), the wording "144 points" is revised to read "50 mm (2 inches)" each place it appears.

§ 172.400 [Amended]

50. In § 172.400, the following changes are made:

a. In paragraph (a)(3), the wording "capacity or unless" is revised to read "capacity, unless".

b. In the paragraph (b) table, in column 1, the entry "5." is revised to read "5.2".

51. In § 172.402, the introductory text preceding the table in paragraph (a) is revised, paragraphs (b) and (c) are redesignated as (c) and (d), newly designated paragraph (d) is revised, and new paragraphs (b) and (e) are added to read as follows:

§ 172.402 Additional labeling requirements.

(a) *Subsidiary hazard labels.* Each package containing a hazardous material—

(1) Shall be labeled with primary and subsidiary hazard labels as specified in Column 6 of the § 172.101 Table; and

(2) For other than Class 2 or Class 1 materials (for subsidiary labeling requirements for Class 1 materials see paragraph (e) of this section), if not already labeled under paragraph (a)(1) of this section, shall be labeled with subsidiary hazard labels in accordance with the following table:

* * * * *

(b) *Display of hazard class on labels.* The appropriate hazard class or, for Division 5.1 or 5.2 the division number, shall be displayed in the lower corner of a primary hazard label and may not be displayed on a subsidiary label.

* * * * *

(d) *Radioactive Materials.* Each package containing a radioactive material that also meets the definition of one or more additional hazards, except Class 9, shall be labeled as a radioactive material as required by § 172.403 of this subpart and for each additional hazard.

(e) *Class 1 (explosive) Materials.* In addition to the label specified in Column 6 of the § 172.101 Table, each package of Class 1 material that also meets the definition for:

(1) Division 6.1, Packing Groups I or II, shall be labeled POISON; or

(2) Class 7, shall be labeled in accordance with § 172.403 of this subpart.

52. In § 172.405, paragraph (b) is removed, paragraph (c) is redesignated as new paragraph (b) and revised to read as follows:

§ 172.405 Authorized label modifications.

* * * * *

(b) For a package containing Oxygen, compressed, or Oxygen, refrigerated liquid, the OXIDIZER label specified in § 172.426 of this subpart, modified to display the word "OXYGEN" instead of "OXIDIZER", and the class number "2" instead of "5.1", may be used in place of the NON-FLAMMABLE GAS and OXIDIZER labels. Notwithstanding the provisions of paragraph (a) of this section, the word "OXYGEN" must appear on the label.

53. In § 172.406, the headings for paragraphs (a), (b), (c), (e), and (f) are revised, a heading is added to paragraph (d), and paragraph (a)(1)(ii) and the introductory text to paragraph (e) are revised, to read as follows:

§ 172.406 Placement of labels.

(a) *General.* (1) * * *

* * * * *

(ii) Be located on the same surface of the package and near the proper shipping name marking, if the package dimensions are adequate.

(b) *Exceptions.* * * *

* * * * *

(c) *Placement of multiple labels.* * * *

* * * * *

(d) *Contrast with background.* * * *

* * * * *

(e) *Duplicate labeling.* Generally, only one of each different required label must be displayed on a package. However, duplicate labels must be displayed on at least two sides or two ends (other than the bottom) of—

* * * * *

(f) *Visibility.* * * *

54. In § 172.407, paragraph (d)(4) is revised to read as follows:

§ 172.407 Label specifications.

* * * * *

(d) * * *

(4) (i) A color on a label, upon visual examination, must fall within the color tolerances—

(A) Displayed on color charts conforming to the technical specifications for charts set forth in Table 1 or 2 in appendix A to this part; or

(B) For labels printed on packaging surfaces, specified in Table 3 in appendix A to this part.

(ii) Color charts conforming to appendix A to this part are on display in Room 8421, Nassif Building, 400 Seventh Street, SW., Washington DC 20590–0001.

* * * * *

55. Section 172.411 is revised to read as follows:

§ 172.411 EXPLOSIVE 1.1, 1.2, 1.3, 1.4, 1.5 and 1.6 labels, and EXPLOSIVE Subsidiary label.

(a) Except for size and color, the EXPLOSIVE 1.1, EXPLOSIVE 1.2 and EXPLOSIVE 1.3 labels must be as follows:

(b) In addition to complying with § 172.407, the background color on the EXPLOSIVE 1.1, EXPLOSIVE 1.2 and EXPLOSIVE 1.3 labels must be orange. The "**" shall be replaced with the appropriate division number and compatibility group. The compatibility group letter must be the same size as the division number and must be shown as a capitalized Roman letter.

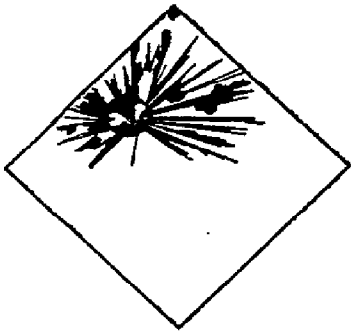
(c) Except for size and color, the EXPLOSIVE 1.4, EXPLOSIVE 1.5, EXPLOSIVE 1.6 labels, and EXPLOSIVE Subsidiary label must be as follows:

EXPLOSIVE 1.4:

EXPLOSIVE 1.5:

EXPLOSIVE 1.6:

EXPLOSIVE Subsidiary label:

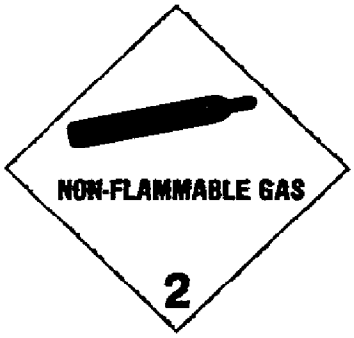


(d) In addition to complying with § 172.407, the background color on the EXPLOSIVE 1.4, EXPLOSIVE 1.5, EXPLOSIVE 1.6, and EXPLOSIVE Subsidiary label must be orange. Except for the EXPLOSIVE subsidiary label, the "*" shall be replaced with the appropriate compatibility group. The compatibility group letter must be shown as a capitalized Roman letter measuring at least 12.7 mm (0.5 inches) in height. Except for the EXPLOSIVE subsidiary label, division numerals must measure at least 30 mm (1.2 inches) in height and at least 5 mm (0.2 inches) in width.

56. Sections 172.415 through 172.417, 172.419, 172.420, 172.422, 172.423, 172.426, 172.427, 172.430 through 172.432, 172.436, 172.438, 172.440, 172.442, 172.446, and 172.448 are republished as follows:

§ 172.415 NON-FLAMMABLE GAS Label

(a) Except for size and color, the NON-FLAMMABLE GAS label must be as follows:



(b) In addition to complying with § 172.407, the background color on the NON-FLAMMABLE GAS label must be green.

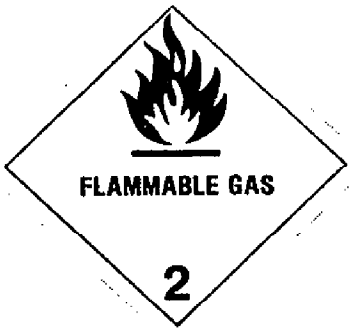
§ 172.416 POISON GAS label.

(a) Except for size and color, the POISON GAS label must be as follows:

(b) In addition to complying with § 172.407, the background on the POISON GAS label must be white.

§ 172.417 FLAMMABLE GAS label.

(a) Except for size and color, the FLAMMABLE GAS label must be as foll



(b) In addition to complying with § 172.407, the background color on the FLAMMABLE GAS label must be red.

§ 172.419 FLAMMABLE LIQUID label.

(a) Except for size and color the FLAMMABLE LIQUID label must be as follows:

(b) In addition to complying with § 172.407, the background color on the FLAMMABLE LIQUID label must be red.

§ 172.420 FLAMMABLE SOLID label.

(a) Except for size and color, the FLAMMABLE SOLID label must be as follows:

(b) In addition to complying with § 172.407, the background on the FLAMMABLE SOLID label must be white with vertical red stripes equally spaced on each side of a red stripe placed in the center of the label. The red vertical stripes must be spaced so that, visually, they appear equal in width to the white spaces between them. The symbol (flame) and text (when used) must be overprinted. The text "FLAMMABLE SOLID" may be placed in a white rectangle.

§ 172.422 SPONTANEOUSLY COMBUSTIBLE label.

(a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE label must be as follows:

(b) In addition to complying with § 172.407, the background color on the lower half of the SPONTANEOUSLY COMBUSTIBLE label must be red and the upper half must be white.

§ 172.423 DANGEROUS WHEN WET label.

(a) Except for size and color, the DANGEROUS WHEN WET label must be as follows:

(b) In addition to complying with § 172.407, the background color on the DANGEROUS WHEN WET label must be blue.

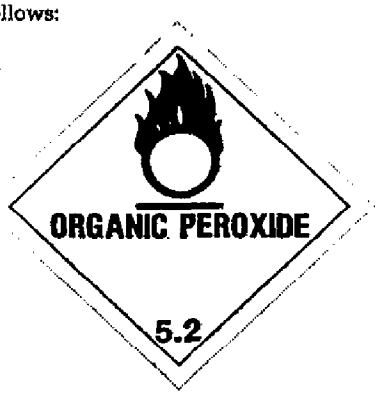
§ 172.426 OXIDIZER label.

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

(b) In addition to complying with § 172.407, the background color on the OXIDIZER label must be yellow.

§ 172.427 ORGANIC PEROXIDE label.

(a) Except for size and color, the ORGANIC PEROXIDE label must be as follows:



(b) In addition to complying with § 172.407, the background color on the ORGANIC PEROXIDE label must be yellow.

§ 172.430 POISON label.

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

(b) In addition to complying with § 172.407, the background on the KEEP AWAY FROM FOOD label must be white.

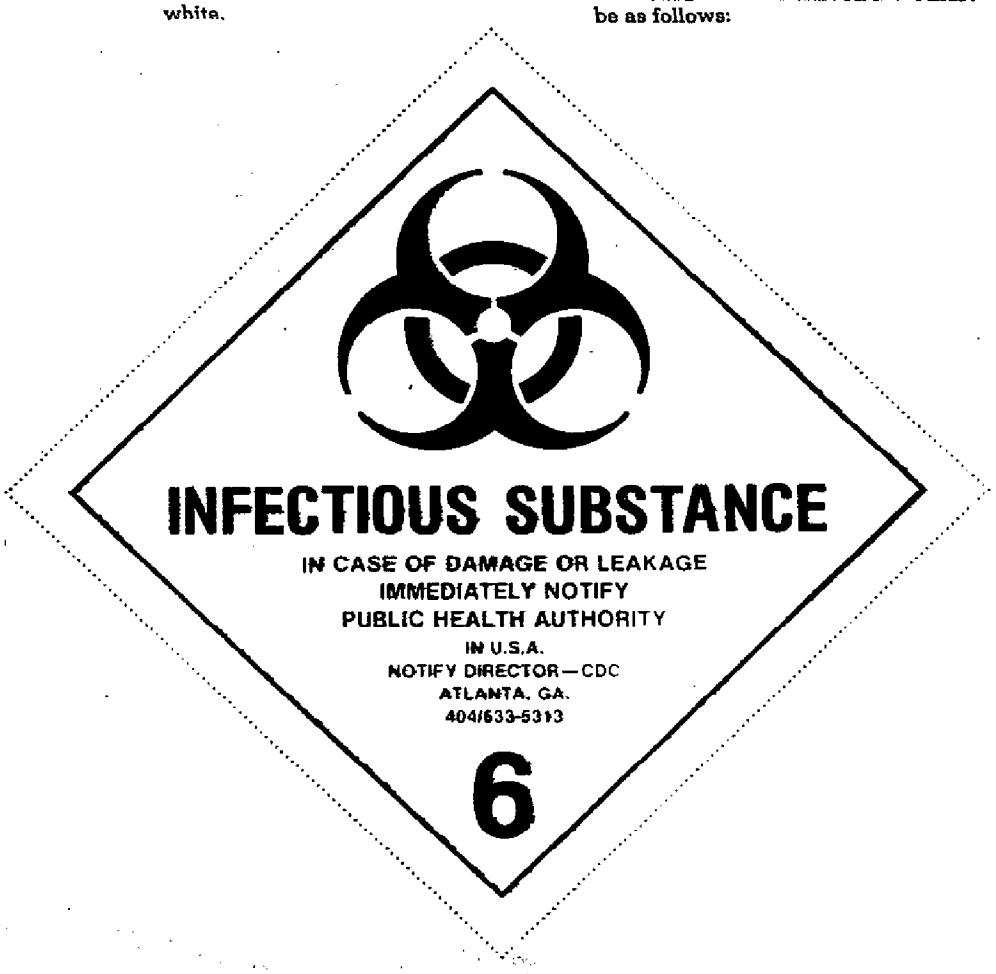
(b) In addition to complying with § 172.407, the background on the POISON label must be white.

§ 172.431 KEEP AWAY FROM FOOD label.

(a) Except for size and color, the KEEP AWAY FROM FOOD label must be as follows:

§ 172.432 INFECTIOUS SUBSTANCE label.

(a) Except for size and color, the INFECTIOUS SUBSTANCE label must be as follows:



(b) In addition to complying with § 172.407, the background on the INFECTIOUS SUBSTANCE label must be white.

§ 172.436 RADIOACTIVE WHITE-I label.

(a) Except for size and color, the RADIOACTIVE WHITE-I label must be as follows:

(b) In addition to complying with § 172.407, the background on the RADIOACTIVE WHITE-I label must be white. The printing and symbol must be black, except for the "I" which must be red.

§ 172.438 RADIOACTIVE YELLOW-II label.

(a) Except for size and color, the RADIOACTIVE YELLOW-II must be as follows:

(b) In addition to complying with § 172.407, the background color on the RADIOACTIVE YELLOW-II label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "II" which must be red.

§ 172.440 RADIOACTIVE YELLOW-III label.

(a) Except for size and color, the RADIOACTIVE YELLOW-III label must be as follows:

(b) In addition to complying with § 172.407, the background color on the RADIOACTIVE YELLOW-III label must be yellow in the top half and white in the lower half. The printing and symbol must be black, except for the "III" which must be red.

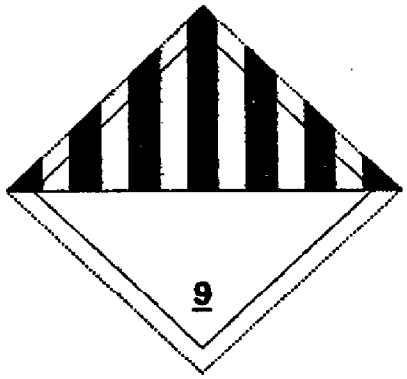
§ 172.442 CORROSIVE label.

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

(b) In addition to complying with § 172.407, the background on the CORROSIVE label must be white in the top half and black in the lower half.

§ 172.446 CLASS 9 label.

(a) Except for size and color, the "CLASS 9" (miscellaneous hazardous materials) label must be as follows:



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

§ 172.448 CARGO AIRCRAFT ONLY label.

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

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

57. In § 172.502, the paragraph heading in (a) is revised, paragraph (b) is revised, paragraph (c) is removed, and paragraph (d) is redesignated as new paragraph (c) and revised to read as follows:

§ 172.502 Prohibited and permissive placarding.

(a) *Prohibited placarding.* * * *

* * * * *

(b) *Exceptions.* (1) The restrictions in paragraph (a) of this section do not apply to a bulk packaging, freight container, unit load device, transport vehicle or rail car which is placarded in conformance with the TDG Regulations, the IMDG Code or the UN Recommendations.

(2) The restrictions of paragraph (a) of this section do not apply to the display of an identification number on a white square-on-point configuration in accordance with § 172.336(b) of this part.

(c) *Permissive placarding.* Placards may be displayed for a hazardous material, even when not required, if the placarding otherwise conforms to the requirements of this subpart.

58. In § 172.504, paragraphs (f)(4), (f)(7), and (f)(8) are revised and a new paragraph (g) is added to read as follows:

§ 172.504 General placarding requirements.

* * * * *

(f) * * *

(4) An EXPLOSIVES 1.3, 1.4, 1.5, 1.6 or OXIDIZER placard is not required for Division 1.3, 1.4, 1.5, 1.6 or 5.1 materials on a freight container, unit load device, transport vehicle or rail car which also contains Division 1.1 or 1.2 explosives and is placarded with EXPLOSIVES 1.1 or 1.2 placards, as required.

* * * * *

(7) For domestic transportation of oxygen, compressed or oxygen, refrigerated liquid, the OXYGEN placard in § 172.530 of this subpart may be used in place of a NON-FLAMMABLE GAS placard.

(8) Except for a material classed as a combustible liquid that also meets the definition of a Class 9 material, a COMBUSTIBLE placard is not required for a material classed as a combustible liquid when transported in a non-bulk packaging. For a material in a non-bulk packaging classed as a combustible liquid that also meets the definition of a Class 9 material, the CLASS 9 placard may be substituted for the COMBUSTIBLE placard.

(g) For shipments of Class 1 (explosive) materials by aircraft or vessel, the applicable compatibility group letter must be displayed on the placards required by this section.

§ 172.504 [Amended]

59. In addition, in § 172.504, the following changes are made:

a. In paragraph (e), in Table 1, column 2, a footnote reference "[1]" is added immediately following "RADIOACTIVE" and a footnote is added immediately at the end of the table to read as follows:

"[1] RADIOACTIVE placard also required for exclusive use shipments of low specific activity material in accordance with § 173.425 (b) or (c) of this subchapter.".

b. In paragraph (e), in Table 2, column 2, the word "COMBUSIBLE" is revised to read "COMBUSTIBLE".

c. In paragraphs (a), (b), (f) introductory text, (f)(3) and (f)(5), the wording "motor vehicle" is revised to read "transport vehicle" each place it appears.

d. In paragraph (c) introductory text, the wording "portable tanks, cargo tanks, tank cars," is revised to read "bulk packagings,".

60. In § 172.505, the section heading and paragraph (b) are revised and a new paragraph (d) is added, to read as follows:

§ 172.505 Placarding for subsidiary hazards.

* * * * *

(b) In addition to the RADIOACTIVE placard which may be required by § 172.504(e) of this subpart, each transport vehicle, portable tank or freight container that contains 454 kg (1001 pounds) or more gross weight of fissile or low specific activity uranium hexafluoride shall be placarded with a CORROSIVE placard on each side and each end.

* * * * *

(d) Hazardous materials that possess secondary hazards may exhibit subsidiary placards that correspond to the placards described in this part, even when not required by this part (see also § 172.519(b) (4) of this subpart).

§ 172.505 [Amended]

61. In addition, in § 172.505, in paragraph (a), the wording "in addition to the placards required by § 172.504. Duplication of the POISON or POISON GAS placard is not required." is revised to read "if not so placarded under § 172.504.".

62. In § 172.510, paragraph (c) is revised to read as follows:

§ 172.510 Special placarding provisions: Rail.

* * * * *

(c) *RESIDUE and subsidiary placards.* Each tank car containing the residue of a hazardous material must have each primary placard changed to the corresponding RESIDUE placard. See § 172.505(c) of this subpart for display requirements for subsidiary hazards.

* * * * *

§ 172.510 [Amended]

63. In addition, in § 172.510, the following changes are made:

a. In paragraph (a)(2), the wording "Division 2.3, Packaging Group I, Hazard Zone A" is revised to read "Division 2.3, Hazard Zone A"; and the wording "POISONOUS GAS" is revised to read "POISON GAS".

b. In paragraph (a)(3), the wording "Division 2.3, Packing Group I, Hazard Zone A" is revised to read "Division 2.3, Hazard Zone A"; and the wording "POISONOUS GAS—RESIDUE" is revised to read "POISON GAS—RESIDUE".

64. In § 172.519, paragraph (a)(2) is removed, paragraphs (a)(3) and (a)(4) are redesignated as (a)(2) and (a)(3), respectively, a third sentence is added at the end of newly designated paragraph (a)(2) and paragraph (f) is revised, to read as follows:

§ 172.519 General specifications for placards.

(a) * * *

(2) * * * In addition, each placard made of tagboard must be able to pass a 414 kPa (60 p.s.i.) Mullen test.

* * * * *

(f) *Exceptions.* For a shipment under the provisions of §§ 171.11, 171.12 or § 171.12a of this subchapter, a placard conforming to specifications in the ICAO Technical Instructions, the IMDG Code, or the TDG Regulations, respectively, may be used in place of a corresponding placard which conforms to the requirements of this subpart.

65. In § 172.522, the paragraph (a) placard is republished and paragraph (b) is revised to read as follows:

§ 172.522 EXPLOSIVES 1.1, EXPLOSIVES 1.2 AND EXPLOSIVES 1.3 placards.

(a) * * *

(b) In addition to complying with § 172.519 of this subpart, the background color on the EXPLOSIVES 1.1,

EXPLOSIVES 1.2, and EXPLOSIVES 1.3 placards must be orange. The "*" shall be replaced with the appropriate division number and, when required, appropriate compatibility group letter. The symbol, text, numerals and inner border must be black.

66. In § 172.523, the paragraph (a) placard is republished and paragraph (b) is revised to read as follows:

§ 172.523 EXPLOSIVES 1.4 placard.

(a) * * *

(b) In addition to complying with § 172.519 of this subpart, the background color on the EXPLOSIVES 1.4 placard must be orange. The "*" shall be replaced, when required, with the appropriate compatibility group letter. The division numeral, 1.4, must measure at least 64 mm (2.5 inches) in height. The text, numerals and inner border must be black.

67. In § 172.524, the paragraph (a) placard is republished and paragraph (b) is revised to read as follows:

§ 172.524 EXPLOSIVES 1.5 placard.

(a) * * *

(b) In addition to complying with § 172.519 of this subpart, the background color on EXPLOSIVES 1.5 placard must be orange. The "*" shall be replaced, when required, with the appropriate compatibility group letter. The division numeral, 1.5, must measure at least 64 mm (2.5 inches) in height. The text, numerals and inner border must be black.

68. In § 172.525, the paragraph (a) placard is republished and paragraph (b) is revised to read as follows:

§ 172.525 EXPLOSIVES 1.6 placard.

(a) * * *

(b) In addition to complying with § 172.519 of this subpart, the background color on the EXPLOSIVES 1.6 placard must be orange. The "*" shall be replaced, when required, with the appropriate compatibility group letter. The division numeral, 1.6, must measure at least 64 mm (2.5 inches) in height. The text, numerals and inner bordest be black.

69. In § 172.526, paragraphs (a)(1), (a)(2) and (a)(4) are revised to read as follows:

§ 172.526 Standard requirements for the RESIDUE placard.

(a) * * *

(1) Except as provided in paragraph (a)(3) of this section, the lower triangle of the RESIDUE placard must be black and the word "RESIDUE" must be in white letters approximately 25 mm (1 inch) high, made with approximately 6.3 mm (0.25 inch) stroke.

(2) Except for the RADIOACTIVE, EXPLOSIVES 1.1, 1.2, 1.3, 1.4, 1.5 or 1.6, DANGEROUS, or subsidiary placard required by § 172.505 of this subpart, the RESIDUE placard may be used to display the appropriate identification number in accordance with the provisions of subpart D of this part.

* * * * *

(4) Otherwise, the RESIDUE placard must be as specified in §§ 172.519, 172.528, 172.530, 172.532, 172.542, 172.544, 172.546, 172.547, 172.548, 172.550, 172.552, 172.553, 172.554, 172.558 and 172.560 as appropriate for the residue of the hazardous material being transported and required by this subchapter to be placarded. No other placard may be used as a RESIDUE placard.

* * * * *

§ 172.526 [Amended]

70. In addition, in § 172.526, in paragraph (c)(3), the wording ", and paragraph (a)(10) of appendix B to this part" is removed and a period is added in its place.

71. Section 172.528 is republished as follows:

§ 172.528 NON-FLAMMABLE GAS placard.

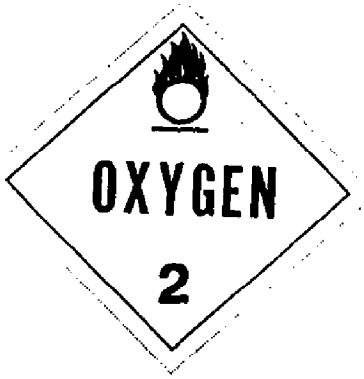
(a) Except for size and color, the NON-FLAMMABLE GAS placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the NON-FLAMMABLE GAS placard must be green. The letters in both words must be at least 38 mm (1.5 inches) high. The symbol, text, class number and inner border must be white.

72. Section 172.530 is republished as follows:

§ 172.530 OXYGEN placard.

(a) Except for size and color, the OXYGEN placard must be as follows:



(b) In addition to complying with § 172.519 of this subpart, the background color on the OXYGEN placard must be yellow. The symbol, text, class number and inner border must be black.

73. Section 172.532 is republished as follows:

§ 172.532 FLAMMABLE GAS placard.

(a) Except for size and color, the FLAMMABLE GAS placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the FLAMMABLE GAS placard must be red. The symbol, text, class number and inner border must be white.

74–75. Sections 172.540, 172.542, 172.544, 172.546 through 172.548, 172.550, 172.552 through 172.554, 172.556, 172.558, and 172.560 are republished to read as follows:

§ 172.540 POISON GAS placard.

(a) Except for size and color, the POISON GAS placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the POISON GAS placard must be white. The symbol, text, class number and inner border must be black.

§ 172.542 FLAMMABLE placard.

(a) Except for size and color, the FLAMMABLE placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the FLAMMABLE placard must be red. The symbol, text, class number and inner border must be white.

(c) The word "GASOLINE" may be used in place of the word "FLAMMABLE" on a placard that is displayed on a cargo tank or a portable tank being used to transport gasoline by highway. The word "GASOLINE" must be shown in white.

§ 172.544 COMBUSTIBLE placard.

(a) Except for size and color, the COMBUSTIBLE placard must be as follows:

(b) In addition to complying with § 172.519, the background color on the COMBUSTIBLE placard must be red. The symbol, text, class number and inner border must be white. On a COMBUSTIBLE placard with a white bottom as prescribed by § 172.332(c)(4), the class number must be red or black.

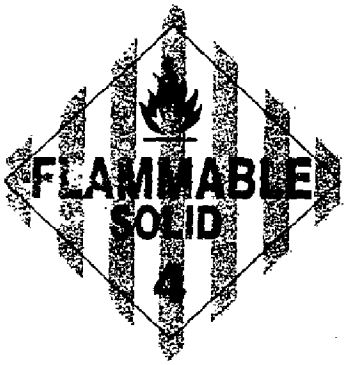
(c) The words "FUEL OIL" may be used in place of the word

"COMBUSTIBLE" on a placard that is displayed on a cargo tank or portable tank being used to transport by highway fuel oil that is not classed as a flammable liquid. The words "FUEL OIL" must be shown in white.

§ 172.546 FLAMMABLE SOLID placard.

(a) Except for size and color, the FLAMMABLE SOLID placard must be as follows:

SECTION 172.546(a).



(b) In addition to complying with § 172.519, the background on the FLAMMABLE SOLID placard must be white with seven vertical red stripes. The stripes must be equally spaced, with one red stripe placed in the center of the label. Each red stripe and each white space between two red stripes must be 25 mm (1.0 inches) wide. The letters in the word "SOLID" must be at least 38.1 mm (1.5 inches) high. The symbol, text, class number and inner border must be black.

§ 172.547 SPONTANEOUSLY COMBUSTIBLE placard.

(a) Except for size and color, the SPONTANEOUSLY COMBUSTIBLE placard must be as follows:

SECTION 172.547(a)

(b) In addition to complying with § 172.519, the background color on the SPONTANEOUSLY COMBUSTIBLE placard must be red in the lower half and white in upper half. The letters in the word "SPONTANEOUSLY" must be at least 25 mm (0.98 inches) high. The symbol, text, class number and inner border must be black.

§ 172.548 DANGEROUS WHEN WET placard.

(a) Except for size and color, the DANGEROUS WHEN WET placard must be as follows:

SECTION 172.548(a)

(b) In addition to complying with § 172.519, the background color on the DANGEROUS WHEN WET placard must be blue. The letters in the words "WHEN WET" must be at least 25 mm (1.0 inches) high. The symbol, text, class number and inner border must be white.

§ 172.550 OXIDIZER placard.

(a) Except for size and color, the OXIDIZER placard must be as follows:

SECTION 172.550(a)

(b) In addition to complying with § 172.519, the background color on the OXIDIZER placard must be yellow. The symbol, text, division number and inner border must be black.

§ 172.552 ORGANIC PEROXIDE placard.

(a) Except for size and color, the ORGANIC PEROXIDE placard must be as follows:

SECTION 172.552(a)

(b) In addition to complying with § 172.519, the background color on the ORGANIC PEROXIDE placard must be yellow. The symbol, text, division number and inner border must be black.

§ 172.553 KEEP AWAY FROM FOOD placard.

(a) Except for size and color, the KEEP AWAY FROM FOOD placard must be as follows:

SECTION 172.553(a)

(b) In addition to complying with § 172.519, the background on the KEEP AWAY FROM FOOD placard must be white. The size of the lettering below the word "HARMFUL" must be proportional to that shown. The symbol, text, class number and inner border must be black.

§ 172.554 POISON placard.

(a) Except for size and color, the POISON placard must be as follows:

SECTION 172.554(a)

(b) In addition to complying with § 172.519, the background on the POISON placard must be white. The symbol, text, class number and inner border must be black.

§ 172.556 RADIOACTIVE placard.

(a) Except for size and color, the RADIOACTIVE placard must be as follows:

SECTION 172.556(a)

(b) In addition to complying with § 172.519, the background color on the RADIOACTIVE placard must be white in the lower portion with a yellow triangle in the upper portion. The base of the yellow triangle must be 29 mm ± 5mm (1.1 inches ±z0.2 inches) above the placard horizontal center line. The symbol, text, class number and inner border must be black.

§ 172.558 CORROSIVE placard.

(a) Except for size and color, the CORROSIVE placard must be as follows:

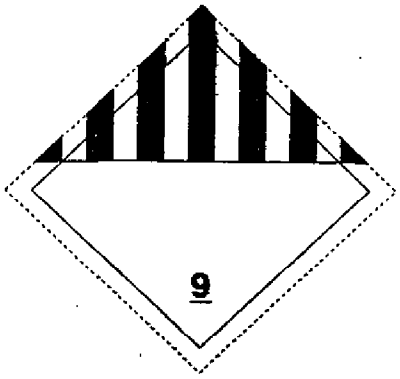
SECTION 172.558(a)

(b) In addition to complying with § 172.519, the background color on the CORROSIVE placard must be black in the lower portion with a white triangle in the upper portion. The base of the white triangle must be 38 mm ± 5mm (1.5 inches ± 0.2 inches) above the placard horizontal center linetext and class number must be white. The symbol and inner border must be black.

§ 172.560 CLASS 9 placard.

(a) Except for size and color the CLASS 9 (miscellaneous hazardous materials) placard must be as follows:

SECTION 172.560(a)



(b) In addition to complying with § 172.519, the background on the CLASS 9 placard must be white with seven black vertical stripes on the top half. The black vertical stripes must be spaced so that, visually, they appear equal in width to the six white spaces between them. The lower half of the placard must be white with the class number 9 underlined and centered at the bottom.

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

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

Authority: 49 App. U.S.C. 1803, 1804, 1805, 1806, 1807, 1808; 49 CFR part 1, unless otherwise noted.

§ 173.2a [Amended]

77. In § 173.2a, the following changes are made:

a. In paragraph (a)(8), the wording "The precedence of hazards" is revised to read "The hazard class and packing group".

b. In paragraph (b), in the Precedence of Hazard Table, in the column titled "8, I liquid", the second entry "3" is revised to read "8"; in the column titled "6.1 III", the third entry is revised to read "3[4]"; and a new footnote 4 is added at the end of the table to read as follows: "[4]For pesticides only, where a material has the hazards of Class 3, Packing Group III, and Division 6.1, Packing Group III, the primary hazard is Division 6.1, Packing Group III.".

78. In § 173.3, paragraph (c)(1) is revised to read as follows:

§ 173.3 Packaging and exceptions.

* * * * *

(c) * * *

(1) The drum must be a UN 1A2, 1B2, 1N2 or 1H2 tested and marked for Packing Group III or higher performance standards for liquids or solids and a leakproofness test of 20 kPa (3 psi). Alternatively, a drum manufactured and marked prior to October 1, 1993 as a salvage drum, in accordance with the provisions of this section in effect on September 30, 1991, is authorized. Capacity of the drum may not exceed 450 L (119 gallons).

* * * * *

§ 173.3 [Amended]

79. In addition, in § 173.3, in paragraph (c)(3), in the first sentence, the word "defective" is removed.

§ 173.3a [Removed]

80. Section 173.3a is removed.

81. In § 173.4, paragraph (a)(6)(ii) is revised to read as follows:

§ 173.4 Exceptions for small quantities.

(a) * * *

(6) * * *

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

* * * * *

§ 173.4 [Amended]

82. In addition, in § 173.4, in paragraph (b), the second sentence is removed.

§ 173.10 [Amended]

83. In § 173.10, in paragraph (a), "below 30°C (100°F)" is revised to read "below 38°Ψ (100°F)".

84. In § 173.12, paragraph (b) is revised and paragraph (d) is added to read as follows:

§ 173.12 Exceptions for shipment of waste materials.

* * * * *

(b) *Lab packs.* (1) Waste materials classed as Class or Division 3, 4.1, 4.2, 4.3, 5.1, 6.1, 8, or 9 are excepted from the specification packaging requirements of this subchapter for combination packagings if packaged in accordance with this paragraph and transported for disposal or recovery by highway only. In addition, a generic description from the § 172.101 Table may be used in place of specific chemical names, when two or more chemically compatible waste materials in the same hazard class are packaged in the same outside packaging.

(2) Additional packaging requirements are as follows:

(i) The outer packaging must be a UN 1A2 or UN 1B2 metal drum, a UN 1D plywood drum, a UN 1G fiber drum or a UN 1H2 plastic drum tested and marked at least for the Packing Group III performance level for liquids or solids;

(ii) The inner packagings must be either glass, not exceeding 4 L (1 gallon) rated capacity, or metal or plastic, not exceeding 20 L (5.3 gallons) rated capacity;

(iii) Each outer packaging may contain only one class of hazardous material;

(iv) Inner packagings containing liquid must be surrounded by a chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents; and

(v) Gross weight of the complete package may not exceed 205 kg (452 lbs)

(3) *Prohibited materials.* Materials meeting the definition of Division 6.1, Packing Group I, or Division 4.2, Packing Group I, and bromine pentafluoride; bromine trifluoride; chloric acid; and oleum (*fuming sulfuric acid*) may not be packaged or described under the provisions of this paragraph.

(c) * * *

(d) *Technical names for n.o.s. descriptions.* The requirements for the inclusion of technical names for n.o.s. descriptions on shipping papers and package markings, §§ 172.203 and 172.301 of this subchapter, respectively, do not apply to packagings prepared in accordance with paragraph (b) of this section, except as follows:

(1) Packages containing materials meeting the definition of a hazardous substance must be described as required in § 172.203(c) of this subchapter and marked as required in § 172.324 of this subchapter; and

(2) Packages containing hazardous materials subject to the provisions of § 172.203(m) of this subchapter must be described in accordance with § 172.203(m) of this subchapter.

85. In § 173.21, in the introductory text of paragraph (f), the first sentence is revised to read as follows:

§ 173.21 Forbidden materials and packages.

* * * * *

(f) A package containing a material which is likely to decompose with a self-accelerated decomposition temperature (SADT) of 50°C (122°F) or less, or polymerize at a temperature of 54°C (130°F) or less with an evolution of a dangerous quantity of heat or gas when decomposing or polymerizing, unless the material is stabilized or inhibited in a manner to preclude such evolution. * * *

* * * * *

§ 173.21 [Amended]

86. In addition, in § 173.21, the following changes are made:

a. In paragraph (f)(2), in the second sentence, the reference "173.225" is revised to read "§ 173.225".

b. In paragraph (i), in the first sentence, the word "inner" is added immediately after "its" and before "packaging."

§ 173.22 [Amended]

87. In § 173.22, in paragraph (c)(2), the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

§ 173.24 [Amended]

88. In § 173.24, the following changes are made:

a. In paragraph (h), the paragraph heading "Outrage and filling limits" is revised to read: "Outage and filling limits".

b. In paragraph (c)(2), the wording "173.6, 173.7" is revised to read "173.7, 173.27".

c. In paragraph (g)(2), the wording "not toxic, flammable or asphyxiant gases;" is revised to read "not poisonous, likely to create a flammable mixture with air or be an asphyxiant under normal conditions of transportation;".

d. In paragraph (g)(3), "identifiable" is revised to read "unintentional".

89. In § 173.24a, paragraph (b)(3) is revised to read as follows:

§ 173.24a Additional general requirements for non-bulk packagings and packages.

* * * * *

(b) * * *

(3) A single or composite non-bulk packaging which is tested and marked for liquid hazardous materials may be filled with a solid hazardous material to a gross mass, in kilograms, not exceeding the rated capacity of the packaging in liters, multiplied by the specific gravity marked on the packaging, or 1.2 if not marked. In addition:

(i) A single or composite non-bulk packaging which is tested and marked for Packing Group I liquid hazardous materials may be filled with a solid Packing Group II hazardous material to a gross mass, in kilograms, not exceeding the rated capacity of the packaging in liters, multiplied by 1.5, multiplied by the specific gravity marked on the packaging, or 1.2 if not marked.

(ii) A single or composite non-bulk packaging which is tested and marked for Packing Group I liquid hazardous materials may be filled with a solid Packing Group III hazardous material to

a gross mass, in kilograms, not exceeding the rated capacity of the packaging in liters, multiplied by 2.25, multiplied by the specific gravity marked on the packaging, or 1.2 if not marked.

(iii) A single or composite non-bulk packaging which is tested and marked for Packing Group II liquid hazardous materials may be filled with a solid Packing Group III hazardous material to a gross mass, in kilograms, not exceeding the rated capacity of the packaging in liters, multiplied by 1.5, multiplied by the specific gravity marked on the packaging, or 1.2 if not marked.

* * * * *

§ 173.24a [Amended]

90. In addition, in § 173.24a, the following changes are made:

a. In paragraph (b)(2), the words "A single" are revised to read "a single" and the wording "Except as otherwise provided in this section," is added at the beginning of the sentence.

b. In paragraph (b)(5), a period is added at the end of the sentence.

§ 173.24b [Amended]

91. In § 173.24b, the following changes are made:

a. In paragraph (a)(1), "Liquids" is revised to read "Liquids and liquefied gases".

b. In paragraph (a)(3), the wording "Bulk packaging for liquids toxic by inhalation. For a liquid which meets the definition for Division 6.1, Packing Group I, based on inhalation toxicity," is revised to read "Bulk packagings for materials poisonous by inhalation. For a material which meets the definition of poisonous by inhalation (see § 171.8 of this subchapter),".

c. In paragraph (d)(2), the wording "Due to its density, exceeds" is removed and replaced with "Exceeds".

92. In § 173.25, paragraphs (a)(5) and (c) are revised to read as follows:

§ 173.25 Authorized packages and overpacks.

(a) * * *

(5) Packages containing Class 8 (corrosive) materials in Packing Group I or Division 5.1 (oxidizing) materials in Packing Group I may not be overpacked with any other materials.

* * * * *

(c) Hazardous materials which are required to be labeled POISON may be transported in the same motor vehicle with material that is marked or known to be foodstuffs, feed or any edible material intended for consumption by humans or animals provided the hazardous material is marked, labeled, and packaged in accordance with this subchapter, conforms to the requirements of paragraph (a) of this section and is overpacked as specified in § 177.841(e) of this subchapter or in an overpack which is a UN 1A2, 1B2, or 1N2 drum tested and marked for a Packing Group II or higher performance level.

§ 173.27 [Amended]

93. In § 173.27, the following changes are made:

a. In paragraph (c)(2)(i), the wording "produces a pressure" is revised to read "produces a gauge pressure".

b. In paragraph (f), Table 2, Column 2, "1kg" is revised to read "1 kg".

94. In § 173.28, the section heading, paragraphs (b)(2)(i), (b)(2)(ii) and paragraph (b)(4) table are revised to read as follows:

§ 173.28 Reuse, reconditioning and remanufacture of packagings.

* * * * *

(b) * * *

(2) * * *

(i) Retested without failure in accordance with § 178.604 of this subchapter using an internal air pressure (gauge) of at least 48 kPa (7.0 psi) for Packing Group I and 20 kPa (3.0 psi) for Packing Group II and Packing Group III; and

(ii) Marked with the letter "L", with the name and address or symbol of the person conducting the test, and the month and last two digits of the year the test was conducted. Symbols, if used, must be registered with the Associate Administrator for Hazardous Materials Safety.

* * * * *

(4) * * *

Maximum capacity not over	Minimum thickness of packaging material	
	Metal drum or jerrican	Plastic drum or jerrican
20 L	0.6 mm (0.024 inch).	1.1 mm (0.043 inch).
30 L	0.7 mm (0.028 inch).	1.1 mm (0.043 inch).
40 L	0.7 mm (0.028 inch).	1.8 mm (0.071 inch).
60 L	0.9 mm (0.035 inch).	1.8 mm (0.071 inch).
120 L	0.9 mm (0.035 inch).	2.2 mm (0.087 inch).
220 L	0.96 mm (0.038 inch) [1].	2.2 mm (0.087 inch).
450 L	1.8 mm (0.071 inch).	5.0 mm (0.197 inch).

[1] Metal drums or jericans constructed with a minimum thickness of 0.8 mm (0.03 inch) body and 1.1 mm (0.043 inch) heads are authorized.

* * * * *

§ 173.28 [Amended]

95. In addition, in § 173.28, the following changes are made:

a. In paragraph (b)(4), the wording "*marked in millimeters*" *is revised to* read "marked in a permanent manner (e.g., embossed) in millimeters".

b. In paragraph (b)(5), "*1.5 mm (0.059 inch)*" *is revised to read* "*2.0 mm (0.039* inch)".

96. In § 173.31, paragraph (a)(18) is added to read as follows:

§ 173.31 Qualification, maintenance, and use of tank cars.

(a) * * *

(18) Except for DOT Specification 111A100W4 and 111J100W4 tank car tanks, Class DOT 103, 104, and 111 tank car tanks used to transport materials meeting the definition of a Class 3 material in § 173.120 of this subchapter must have closures for manways so designed that pressure will be released automatically and safely in the process of removing the manway cover.

§ 173.32 [Amended]

97. In § 173.32, in paragraph (a)(5), the wording "the IM Tank Table" is revised to read "§ 172.101(c)(7) of this subchapter" and the section heading is revised to read as follows:

§ 173.32 Qualification, maintenance and use of portable tanks other than Specification IM portable tanks.

98. In § 173.32c, paragraph (q) is added to read as follows:

§ 173.32c Use of Specification IM portable tanks.

* * * * *

(q) If the hazardous material being transported is in a molten state, the tank must be thermally insulated by completely covering it with at least 100 mm (3.94 inches) of cork or other suitable insulation material of sufficient thickness that the overall thermal conductance is not more than 0.080 Btu per hour per square foot per degree Fahrenheit differential.

§ 173.32c [Amended]

99. In § 173.32c, in paragraph (g)(2), the wording "by the IM Tank Table in § 172.102 of this subchapter" is removed and replaced with "through § 172.102(c)(7) of this subchapter".

§ 173.34 [Amended]

100–101. In § 173.34, in paragraph (c)(3), the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate

Administrator for Hazardous Materials Safety".

Subpart C—Definitions, Classification and Packaging for Class 1

102. The subpart C heading is revised to read as set forth above.

103. In § 173.50, paragraph (b)(4) is revised to read as follows:

§ 173.50 Class 1—definitions.

* * * * *

(b) * * *

(4) *Division 1.4* consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.

* * * * *

§ 173.50 [Amended]

104. In addition, in § 173.50, in Footnote 1, the word "Probability" is revised to read "probability".

§ 173.54 [Amended]

105. In § 173.54, the following changes are made:

a. In paragraph (a), a period is added at the end of the sentence.

b. In paragraph (j), the wording "the Hazardous Materials Table in § 172.101" is revised to read "the § 172.101 Table".

§ 173.56 [Amended]

106. In § 173.56, the following changes are made:

a. In paragraph (b)(1), the wording "shipping description'" is revised to read "shipping description," and the period between "Mines" and "U.S." is removed and replaced with a comma.

b. In paragraph (g), in the first sentence, the reference "§ 171.12a" is added immediately after "§§ 171.11, 171.12," and before "or 176.11".

c. In paragraph (h)(3), the word "or" is removed and replaced with the word "and".

107. In § 173.58, in paragraph (c)(ii), the word "and" is removed, in paragraph (c)(iii), the period at the end of the paragraph is removed and replaced with the words "; and", and paragraph (c)(1)(iv) is added to read as follows:

§ 173.58 Assignment of class and division for explosives.

* * * * *

(c) * * *

(1) * * *

(iv) The 1.6 Article Bullet Impact Test.

* * * * *

§ 173.58 [Amended]

108. In addition, in § 173.58, in paragraphs (b) introductory text and (b)(2), the wording "DOT Test" is revised to read "DDT Test", both places it appears.

§ 173.59 [Amended]

109. In § 173.59, the wording "N.V.S." in the heading for the term *"Substance, explosive, very insensitive, (Substance, EVI) N.V.S."* is revised to read "N.O.S.".

§ 173.60 [Amended]

110. In § 173.60, in paragraph (b)(8), the wording "rigid plastic box" is revised to read "rigid plastic-lined box".

§ 173.61 [Amended]

111. In § 173.61, in paragraph (d), the wording "UN 0333, 0334, 0335, 0336, and 0337" is revised by adding "UN" immediately before each of the second through fourth numbers.

112. In § 173.62, paragraph (a) is revised and paragraph (e) is added to read as follows:

§ 173.62 Specific packaging requirements.

(a) Except as provided in paragraph (e) of this section, when the § 172.101 Table specifies that an explosive must be packaged in accordance with this section, only non-bulk packagings which conform to the provisions of paragraphs (b), (c) and (d) of this section, and the applicable requirements in §§ 173.60 and 173.61 of this subpart, may be used.

* * * * *

(e) Class 1 (explosive) materials owned by the Department of Defense, packaged prior to January 1, 1988 in accordance with the requirements of this subchapter in effect at that time, are excepted from the requirements of part 178 of this subchapter provided the packagings have maintained their integrity and the goods are declared as government-owned goods packaged prior to January 1, 1988.

§ 173.62 [Amended]

113. In addition, in § 173.62, the following changes are made:

a. In paragraph (b), the word "Table" is added immediately after "of the Explosives" and before "by their" in the second sentence, and in the Explosives Table, in the column entitled "Identification No.", "UN0411E–22(a)" is revised to read "UN0411".

b. In addition, in paragraph (b), the following entries are added to the Explosives Table in appropriate alpha-numerical order:

EXPLOSIVES TABLE

Identification No.	Packing methods
* * * * *	
UN0407	E–25
* * * * *	
UN0448	E–25
* * * * *	
UN0479	E–103
UN0480	E–103
UN0481	E–103
* * * *	
UN0485	E–103
* * * *	

c. In paragraph (c), in the Table of Packing Methods, note US006, in paragraph a., a period is added at the end of the sentence; in paragraph e., at the end of the sentence, the wording "provided that:" is added; and in paragraph f.4., the wording "When more one" is revised to read "When more than one".

d. In addition, in paragraph (c), in the Table of Packing Methods, the following changes are made:

1. For E–6(a)(i), the phrase "Rubberized, textile" is removed and replaced with the phrase "Rubberized textile" under the column headed "Inner packagings".

2. For E–8, the phrase "(4G1)," is removed and replaced with the phrase "(4G)," under the column headed "Outer packagings".

3. For E–17, add "47" to the column headed "Particular packing exception/requirement".

4. For E–102, the phrase "13,48" is added to the column headed "Particular packing exception/requirement".

5. For E–103, the phrase "the subchapter" is removed and replaced with the phrase "this subchapter" under the column headed "Inner packagings".

6. For E–106, add a new entry "Drums, Steel, removable head (1A2)." in the column headed "Outer packaging".

7. For E–108, the phrase "Wooded." is removed and replaced with the phrase "Wood." under the column headed "Inner packagings and the phrase "Wooden." is removed and replaced with the phrase "Wood." under the column headed "Outer packagings".

8. For E–121, the phrase "(4G1)" is removed and replaced with the phrase "(4G)" under the column headed "Outer packagings".

9. For E–133, the phrase "outer package" is removed and replaced with the phrase "outer packaging" under the column headed "inner packagings".

10. For E–142, revise the column headed "Particular packing exception/requirement" to read "41, D9, D11".

11. For E-146(a), E-146(b), and E-146(c), add "D16" to the column headed "Particular packing exception/ requirement".

e. In paragraph (d), in the Table, in entry 22, the word "or" is added immediately after "wood" and before "wool"; in entry D2, the paragraph designator "(a)(1)" is revised to read "(a)(i)"; and a new entry D16 is added as the last entry immediately after D15 to read as follows:

"D16..... Additional packagings may be approved by the Associate Administrator for Hazardous Materials Safety.".

§ 173.63 [Amended]

114. In § 173.63, the following changes are made:

a. In paragraph (a) introductory text, "(l.4D)" is revised to read "(1.4D)".

b. Paragraphs (d) and (e) are removed and reserved.

115. In § 173.115, paragraphs (a), (c) heading, (c) introductory text, and (c)(2) are revised to read as follows:

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

(a) *Division 2.1 (Flammable gas).* For the purpose of this subchapter, a "flammable gas" (Division 2.1) means any material which is a gas at 20°C (68°F) or less and 101.3 kPa (14.7 psi) of pressure (a material which has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psi) which—

(1) Is ignitable at 101.3 kPa (14.7 psi) when in a mixture of 13 percent or less by volume with air; or

(2) Has a flammable range at 101.3 kPa (14.7 psi) with air of at least 12 percent regardless of the lower limit.

Except for aerosols, the limits specified in paragraphs (a)(1) and (a)(2) of this section shall be determined at 101.3 kPa (14.7 psi) of pressure and a temperature of 20°C (68°F) in accordance with ASTM E681-85, Standard Test Method for Concentration Limits of Flammability of Chemicals. The flammability of aerosols is determined by the tests specified in § 173.306(i) (2), (3), and (4) of this part.

* * * * *

(c) *Division 2.3 (Gas poisonous by inhalation).* For the purpose of this subchapter, a "gas poisonous by inhalation" (Division 2.3) means a material which is a gas at 20°C (68°F) or less and a pressure of 101.3 kPa (14.7 psi) (a material which has a boiling point of 20°C (68°F) or less at 101.3 kPa (14.7 psi)) and which—

(1) * * *

(2) In the absence of adequate data on human toxicity, is presumed to be toxic to humans because when tested on laboratory animals it has an LC50 value of not more than 5000 ml/m³ (see § 173.116(a) of this subpart for assignment of Hazard Zones A, B, C or D). LC50 values for mixtures may be determined using the formula in § 173.133(b)(1)(i) of this subpart.

* * * * *

§ 173.116 [Amended]

116. In § 173.116, in paragraph (a), "Column 5" is revised to read "Column 7".

117. In § 173.120, paragraph (b)(2) is revised to read as follows:

§ 173.120 Class 3—Definitions.

* * * * *

(b) * * *

(2) A flammable liquid with a flash point at or above 38°C (100°F) that does not meet the definition of any other hazard class, except Class 9, may be reclassed as a combustible liquid. This provision does not apply to transportation by vessel or aircraft, except where other means of transportation is impracticable.

* * * * *

§ 173.120 [Amended]

118. In § 173.120, the following changes are made:

a. In paragraphs (a)(1) introductory text, (a)(1)(ii), and (b)(1), "60°C (140°F)" is revised to read "60.5°C (141°F)".

b. In paragraph (b)(1), the wording "hazard class specified in this subchapter and has a flash point" is revised to read "hazard class specified in this subchapter, except Class 9, and has a flash point".

c. In paragraph (c)(2), in the third sentence, "10 percent" is revised to read "10 percent".

§ 173.121 [Amended]

119. In § 173.121, the following changes are made:

a. In the paragraph (a) table, for the entry "III" in column 2, "< 60°C (140°F)" is revised to read "< 60.5°C (141°F)".

b. In the paragraph (b)(1)(iv) table, in Column 3, for the entry "Over 100", "Over −5" is revised to read "Over +5".

§ 173.124 [Amended]

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

a. In paragraphs (a)(3)(ii), the reference "2.2" is revised to read "2.c.(2)".

b. In paragraph (a)(3)(iii), the reference "2.3.2" is revised to read "2.c.(2)".

c. In paragraph (b)(1), the reference "3.1.1 or 3.1.2" is revised to read "3.a.(1) or 3.a.(2)".

d. In paragraph (b)(2), the reference "3.2.1" is revised to read "3.b.(1)".

§ 173.128 [Amended]

121. In § 173.128, the following changes are made:

a. In paragraph (c)(2), the reference "§ 173.223" is revised to read "§ 173.21(f)".

b. *In paragraph (d),* "*Figure 1.1*" *is* revised to read "Figure 11.1".

§ 173.132 [Amended]

122. In § 173.132, the following changes are made:

a. In paragraph (a)(1) introductory text, the wording "(whenever possible, animal test data that has been reported in the chemical literature should be used)" is added immediately after "laboratory animals".

b. In paragraph (a)(1)(iii)(B), the wording "not more than 5000 ml/ms" is revised to read "not more than 5000 ml/m³".

c. In paragraph (b)(1), in the first sentence, "oral" is added immediately after "acute" and before "toxicity", and "adult" is added immediately after "young" and before "albino".

d. In paragraph (b)(2), the word "braiding" is revised to read "abrading".

123. In § 173.133, the section heading and paragraph (a)(2) are revised to read as follows:

§ 173.133 Assignment of packing group and hazard zones for Division 6.1 materials.

(a) * * *

(2)(i) The packing group and hazard zone assignments for liquids (see § 173.115(c) of this subpart for gases) based on inhalation of vapors shall be in accordance with the following Table:

Packing Group	Vapor concentration and toxicity
I (Hazard Zone A).	V > 500 LC_{50} and LC_{50} < 200 mL/M³.
I (Hazard Zone B).	V > 10 LC_{50}; LC_{50} < 1000 mL/m³; and the criteria for Packing Group I, Hazard Zone A are not met.
	V > LC_{50}; LC_{50} < 3000 mL/m³; and the criteria for Packing Group I, are not met.
	V > .2 LC_{50}; LC_{50} < 5000 mL/m³; and the criteria for Packing Groups I and II, are not met.

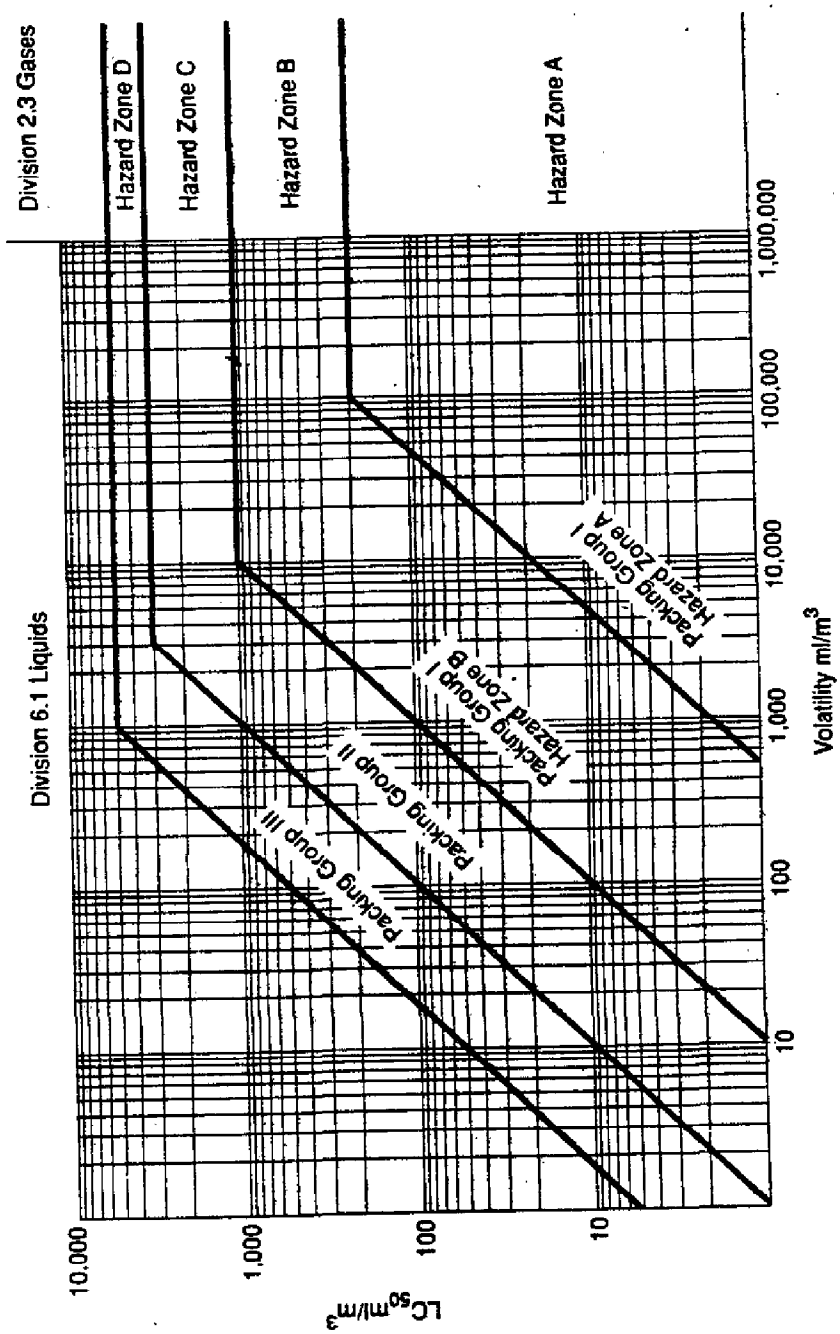
Note 1: V is the saturated vapor concentration in air of the material in mL/m³ at 20C° and standard atmospheric pressure.

Note 2: A liquid in Division 6.1 meeting criteria for Packing Group I, Hazard Zones A or B stated in paragraph (a)(2) of this section is a material poisonous by inhalation subject to the additional hazard communication requirements in §§ 172.203(m)(3), 172.313 and Table 1 of § 172.504(e) of this subchapter.

(ii) These criteria are represented graphically in Figure I:

BILLING CODE 4910-60-M

Figure 1
Inhalation Toxicity: Packing Group and Hazard Zone Borderlines



BILLING CODE 4910-60-C

* * * * *

§ 173.133 [Amended]

124. In addition, in § 173.133, the following changes are made:

a. In the paragraph (a)(1) table, in column 4, "<0.5, <2" is revised to read "≤0.5, <2".

b. In paragraph (b)(1)(ii), in the formula, "760" is removed and replaced with "101.3".

c. In paragraph (b)(1)(ii), the wording "partial pressure may be calculated" is revised to read "partial pressure of the *ith* component substance in kPa at 20 °C and one atmospheric pressure. Pi may be calculated".

125. In § 173.134, paragraph (a)(4) is added to read as follows:

§ 173.134 Class 6, Division 6.2—Definitions.

(a) * * *

(4) A "regulated medical waste" as defined in Appendix G of this part.

* * * * *

§ 173.134 [Amended]

126. In addition, in § 173.134, in paragraph (a)(1), in the first sentence, the wording "has the potential to cause" is revised to read "causes or may cause".

§ 173.136 [Amended]

127. In § 173.136, in paragraph (b), the wording "paragraph (a) of this section. RSPA may revise its classification or make the material subject to the requirements of this subchapter" is revised to read "paragraph (a) of this section. RSPA may revise its classification or make the determination that the material is not subject to the requirements of this subchapter".

§ 173.137 [Amended]

128. In § 173.137, in paragraphs (a), (b), and (c)(1), the wording "visible necrosis of the skin tissue" is removed and replaced with "visible destruction or irreversible alterations of the skin tissue" each place it appears.

129. Section 173.140 is revised to read as follows:

§ 173.140 Class 9—Definitions.

For the purpose of this subchapter, "miscellaneous hazardous material" (class 9) means a material which:

(a) Has an anesthetic, noxious or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties; and

(b) Meets the definition in § 171.8 of this subchapter for a hazardous substance or a hazardous waste.

130. In § 173.150, paragraphs (f)(1) and (f)(3) (iv) and (vi) are revised to read as follows:

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

* * * * *

(f) * * * (1) A flammable liquid with a flash point at or above 38 °C (100°F) that does not meet the definition of any other hazard class, except Class 9, may be reclassed as a combustible liquid. This provision does not apply to transportation by vessel or aircraft, except where other means of transportation is impracticable.

* * * * *

(3) * * *

(iv) Placarding requirements of Subpart F of Part 172 of this subchapter;

(v) * * *

(vi) Reporting incidents as prescribed by §§ 171.15 and 171.16 of this subchapter;

(vii) Packaging requirements of Subpart B of this part and, in addition, non-bulk packagings must comply with requirements of § 173.203; and

* * * * *

§ 173.150 [Amended]

131. In addition, in § 173.150, in paragraph (b)(3), "4.0 L (1 gallon)" is revised to read "5.0 L (1 gallon)".

§ 173.154 [Amended]

132. In § 173.154, in paragraph (d), the wording "packaging constructed" is revised to read "portable tank, cargo tank, or tank car constructed".

§ 173.155 [Amended]

133. In § 173.155, in paragraph (b), in the first sentence, the wording "are excepted from the specification packaging" is revised to read "are excepted from labeling, unless offered or intended for transportation by aircraft, and the specification packaging".

§ 173.156 [Amended]

134. In § 173.156, the following changes are made:

a. In paragraph (b), in the second sentence, the wording "contract motor carrier from a distribution center" is revised to read "contract motor carrier or a common carrier vehicle under exclusive use for such service, from a distribution center to a retail outlet".

b. In addition, in paragraph (b), a third sentence is added at the end of the paragraph to read "Packagings of ORM-D materials shipped in this manner are not subject to the 30 kg (66 pound) gross weight limitation.".

§ 173.158 [Amended]

135. In § 173.158, the following changes are made:

a. In paragraph (e), the wording "4G fiberboard boxes or" is added immediately after "may be packaged in" and before "4C1, 4C2, 4D or 4F wooden boxes".

b. In paragraph (h)(2), the wording "further individually overpacked in tightly closed metal packagings" is added immediately after "capacity".

§ 173.159 [Amended]

136. In § 173.159, in paragraph (d)(1), in the first sentence, "(0.063 mm)" is revised to read "(0.063 inches)".

§ 173.164 [Amended]

137. In § 173.164, the following changes are made:

a. Paragraphs (b)(2) through (b)(4) are redesignated (b)(3) through (b)(5).

b. Paragraph (b)(1) is amended by designating the last sentence as paragraph (b)(2).

c. In newly designated paragraph (b)(2), "also" is removed and the wording "from the requirements of this subchapter" is added immediately after "excepted" and before "if installed", and in newly designated paragraphs (b)(2) and (b)(3)(iv) the semicolon at the end of the sentence is removed and replaced with a period each place it appears.

138. In § 173.171, the introductory paragraph and paragraph (a) are revised to read as follows:

§ 173.171 Smokeless powder for small arms.

Smokeless powder for small arms which has been classed in Division 1.3 may be reclassed as a 4.1 material, for transportation by highway and rail only, subject to the following conditions:

(a) The powder must be examined and approved for a Division 1.3 classification in accordance with § 173.56 of this part;

* * * * *

§ 173.171 [Amended]

139. In addition, in § 173.171, in paragraph (c), in the second sentence, the wording "must be a type" is revised to read "must be of the same type".

§ 173.173 [Amended]

140. In § 173.173, in paragraph (a), in the third sentence, the wording "drying," is added immediately after "thinning," and before "reducing".

§ 173.181 [Amended]

141. In § 173.181, the following changes are made:

a. In paragraph (c) introductory text, the wording "or fiber drums (1G)" is added immediately after "(1A2)" and before "not exceeding"; the wording

"strong tight" is added immediately after "each with" and before "inner metal cans"; and the wording "constructed of not less than 0.379 mm (0.015 inch) nominal thickness electro-coated tin plate" is removed.

b. In paragraph (c)(3), "tin" is revised to read "metal".

142. In § 173.185, paragraph (j) introductory text is revised and paragraph (k) is added to read as follows:

§ 173.185 Lithium batteries and cells.

* * * * *

(j) Lithium cells and batteries, for disposal, may be offered for transportation or transported to a permitted storage facility and disposal site by motor vehicle only, if the cells and batteries—

* * * * *

(k) Cells or batteries discharged to below 2 volts, not to exceed 100 cells or batteries per shipment, may be shipped for testing purposes by highway only.

§ 173.185 [Amended]

143. In addition, in § 173.185, the following changes are made:

a. In paragraph (a), the second sentence is revised to read "Rechargeable lithium batteries and cells, devices containing regulated lithium batteries (including lithium batteries contained in equipment) and cells, and lithium batteries and cells which do not otherwise comply with the requirements of this section may not be transported except as approved by the Associate Administrator for Hazardous Materials Safety."

b. In paragraph (i) introductory text, "subpart" is revised to read "subchapter".

c. In paragraphs (j)2) and (j)(3), "Is" is removed and replaced with "Are", both times it appears.

144. In § 173.188, paragraph (a)(2) is revised to read as follows:

§ 173.188 White or yellow phosphorous.

* * * * *

(a) * * *

(2) Steel drums (1A1) not over 250 L (66 gallons) capacity each or steel drums (1A2) not over 115 L (30 gallons) capacity each.

* * * * *

§ 173.192 [Amended]

145. In § 173.192, the following changes are made:

a. In the introductory text, the reference "§ 173.101" is revised to read "§ 172.101".

b. In paragraph (a)(2), "127 kg (280 pounds)" is revised to read "57 kg (125 pounds)".

146. In § 173.193, paragraph (c) is redesignated paragraph (d) and revised; a second sentence is added at the end of paragraph (b); and a new paragraph (c) is added to read as follows:

§ 173.193 Bromoacetone, methyl bromide, chloropicrin and methyl bromide or methyl chloride mixtures, etc.

* * * * *

(b) * * * This capacity does not apply to shipments of methyl bromide.

(c) Methyl bromide mixtures containing up to 2% chloropicrin must be packaged in 4G fiberboard boxes with inside metal cans containing not over one pound each, or inside metal cans with a minimum wall thickness of 0.007 inch containing not over 1¾ pounds each. The one-pound can must be capable of withstanding an internal pressure of 130 psig without leakage or permanent distortion. Vapor pressure of the contents must not exceed 130 psig at 55 °C (130 °F). The 1¾-pound can must be capable of withstanding an internal pressure of 140 psig without leakage or permanent distortion. Vapor pressure of the contents must not exceed 140 psig at 55 °C (130 °F). Cans must not be liquid full at 130 °F. Cans must be constructed of tinplate or lined with suitable material and must have concave or pressure ends.

(d) Cylinders must conform to § 173.40 of this part.

147. In § 173.195, the section heading is revised to read as follows:

§ 173.195 Hydrogen cyanide, anhydrous, stabilized (hydrocyanic acid, aqueous solution).

148. Subpart E is amended by adding § 173.197 to read as follows:

§ 173.197 Regulated medical waste.

(a) Regulated medical waste must be packaged in packagings conforming to the requirements of part 178 of this subchapter at the Packing Group II performance level. The packagings must be:

(1) Rigid;

(2) Leak resistant;

(3) Impervious to moisture;

(4) Of sufficient strength to prevent tearing or bursting under normal conditions of use and handling;

(5) Sealed to prevent leakage during transport;

(6) Puncture resistant for sharps and sharps with residual fluids; and

(7) Break-resistant and tightly lidded or stoppered for fluids in quantities greater than 20 cubic centimeters.

(b) Until October 1, 1994, packages do not have to be marked or tested but must be capable of meeting the requirements in subpart M of part 178 of this subchapter.

§ 173.202 [Amended]

149. In § 173.202, in paragraph (c), the entry "Fiber drum: 1G (with liner)" is added immediately below the entry "Plastic drum: 1H1 or 1H2".

§ 173.203 [Amended]

150. In § 173.203, in paragraph (c), the entry "Fiber drum: 1G (with liner)" is added immediately below the entry "Plastic drum: 1H1 or 1H2".

§ 173.211 [Amended]

151. In § 173.211, in paragraph (c), the entry "Fiber drum: 1G" is added immediately below the entry "Plastic drum: 1H1 or 1H2".

§ 173.224 [Amended]

152. In § 173.224, the following changes are made:

a. In the paragraph (c) table, in columns (2a) and (2b), for each entry, the metric measurements are revised by removing the parentheses, moving the metric measurements to precede the U.S. standard measurements, and adding parentheses around the U.S. standard measurements.

b. In the paragraph (c) table, in column (2b), for the entry F5a, "55 kg (110 lb)" is revised to read "50 kg (110 lb)"; and in the column "Outer packaging", for the entry F5b, the wording "Fiber drum, sift proof 1G" is added.

153. In § 173.225, in paragraph (b), the Organic Peroxides Table is revised to read as follows:

§ 173.225 Packaging requirements and other provisions for organic peroxides.

* * * * *

(b) * * *

ORGANIC PEROXIDES TABLE

Technical Name (1)	ID Number (2)	Concentration (Mass %) (3)	Diluent (Mass %) A (4a)	Diluent (Mass %) B (4b)	Diluent (Mass %) I (4c)	Water (Mass %) (5)	Packing Method (6)	Temperature(°C) Control (7a)	Temperature(°C) Emergency (7b)	Notes (8)
Acetyl acetone peroxide	UN3105	≤42	≥48			≥8	OP7A			2
Acetyl acetone peroxide as a paste	UN3106	≤32					OP7B			21
Acetyl benzoyl peroxide	UN3105	≤45	≥55				OP7A			
Acetyl cyclohexanesulfonyl peroxide	UN3112	≤82				≥12	OP4B	-10	0	
Acetyl cyclohexanesulfonyl peroxide	UN3115	≤32		≥68			OP7A	-10	0	
tert-Amyl hydroperoxide	UN3107	≤88	≥6			≥6	OP8A			
tert-Amyl peroxybenzoate	UN3105	≤96	≥4				OP7A			
tert-Amyl peroxy-2-ethylhexanoate	UN3115	≤100					OP7A	20	25	
tert-Amyl peroxyneodecanoate	UN3115	≤77		≥23			OP7A	0	10	
tert-Amyl peroxypivalate	UN3113	≤77		≥23			OP5A	10	15	
tert-Amylperoxy-3,5,5-trimethylhexanoate	UN3101	≤100					OP5A			
tert-Butyl cumyl peroxide	UN3105	≤100					OP7A			1,9
n-Butyl-4,4-di-(tertbutylperoxy) valerate	UN3103	>52, ≤100					OP5A			
n-Butyl-4,4-di-(tertbutylperoxy) valerate	UN3106	≤52			≥48		OP7B			
tert-Butyl hydroperoxide	UN3103	>72, ≤90				≥10	OP5A			
tert-Butyl hydroperoxide	UN3105	≤80	≥20				OP7A			4
tert-Butyl hydroperoxide	UN3109	≤72				≥28	OP8A			14
tert-Butyl hydroperoxide *and* di-tert-Butyl peroxide	UN3103	≤82 ≥9				≥7	OP5A			
tert-Butyl monoperoxymaleate	UN3102	>52, ≤100					OP5B			
tert-Butyl monoperoxymaleate	UN3103	≤52	≥48				OP6A			
tert-Butyl monoperoxymaleate *as a paste*	UN3108	≤42					OP8B			21
tert-Butyl monoperoxyphthalate	UN3102	≤100					OP5B			
tert-Butyl peroxyacetate	UN3101	>52, ≤77	≥23				OP5A			
tert-Butyl peroxyacetate	UN3103	≤52	≥48				OP6A			
tert-Butyl peroxybenzoate	UN3103	>77, ≤100	≤22				OP5A			
tert-Butyl peroxybenzoate	UN3105	>52, ≤77	≥23				OP7A			1
tert-Butyl peroxybenzoate	UN3106	≤52			≥48		OP7B			
tert-Butyl peroxycrotonate	UN3105	≤77	≥23				OP7A			
tert-Butyl peroxydiethylacetate	UN3113	≤100					OP5A	20	25	
tert-Butyl peroxydiethylacetate *and* tert-Butyl peroxybenzoate	UN3105	≤33 ≤33	≥39				OP7A			
tert-Butyl peroxy-2-ethylhexanoate	UN3113	>52, ≤100					OP6A	20	25	
tert-Butyl peroxy-2-ethylhexanoate	UN3117	≤52		≥48			OP8A	20	25	
tert-Butyl peroxy-2-ethylhexanoate *and* 2,2-Di-(tert-butylperoxy)butane	UN3115	≤31 ≤36		≥33			OP7A	35	40	
tert-Butyl peroxy-2-ethylhexanoate *and* 2,2-Di-(tert-butylperoxy)butane	UN3106	≤12 ≤14	≥14		≥60		OP7B			
tert-Butyl peroxyisobutyrate	UN3111	>52, ≤77		≥23			OP5A	15	20	
tert-Butyl peroxyisobutyrate	UN3115	≤52		≥48			OP7A	15	20	
tert-Butylperoxy isopropylcarbonate	UN3103	≤77	≥23				OP5A			
tert-Butyl peroxyneodecanoate	UN3115	>77, ≤100					OP7A	-5	5	
tert-Butyl peroxyneodecanoate	UN3115	≤77		≥23			OP7A	0	10	
3-tert-Butylperoxy-3-phenylphthalide	UN3106	≤100					OP7B			
tert-Butyl peroxypivalate	UN3113	>67, ≤77	≥23				OP5A	0	10	
tert-Butyl peroxypivalate	UN3115	≤67		≥33			OP7A	0	10	
tert-Butylperoxy stearylcarbonate	UN3106	≤100					OP7B			
tert-Butyl peroxy-3,5,5-trimethylhexanoate	UN3105	≤100					OP7A			
3-Chloroperoxybenzoic acid	UN3102	>57, ≤86				≥14	OP1B			
3-Chloroperoxybenzoic acid	UN3106	≤57			≥3	≥40	OP7B			
Cumyl hydroperoxide	UN3109	≤90	≥10				OP8A			14
Cumyl peroxyneodecanoate	UN3115	≤77		≥23			OP7A	-10	0	
Cumyl peroxypivalate	UN3115	≤77		≥23			OP7A	-5	5	
Cyclohexanone peroxide(s)	UN3104	≤91				≥9	OP6B			
Cyclohexanone peroxide(s) *as a paste*	UN3106	≤72					OP7B			5, 21
Cyclohexanone peroxide(s)	UN3105	≤72	≥28				OP7A			5
Cyclohexanone peroxide(s)	Exempt	≤32			≥68					
Diacetone alcohol peroxides	UN3115	≤57		≥26		≥8	OP7A	30	35	5
Diacetyl peroxide	UN3115	≤27		≥73			OP7A	20	25	6
Di-tert-amyl peroxide	UN3107	≤100					OP8A			
Dibenzoyl peroxide	UN3102	>52, ≤100			≤48		OP2B			3
Dibenzoyl peroxide	UN3102	>78, ≤94				≥6	OP4B			3
Dibenzoyl peroxide	UN3104	≤77				≥23	OP6B			
Dibenzoyl peroxide	UN3106	≤62			≥26	≥10	OP7B			
Dibenzoyl peroxide *as a paste*	UN3106	>52 ≤62					OP7B			21
Dibenzoyl peroxide *as a paste*	UN3108	≤52					OP8B			21
Dibenzoyl peroxide	UN3106	>35, ≤52			≥48		OP7B			
Dibenzoyl peroxide	Exempt	≤35			≥65					
Dibenzyl peroxydicarbonate	UN3112	≤87				≥13	OP5B	25	30	
Di-(4-tert-butylcyclohexyl) peroxydicarbonate	UN3114	≤100					OP6B	30	35	
Di-(4-tert-butylcyclohexyl) peroxydicarbonate *as a stable dispersion in water.*	UN3119	≤42					OP8A	30	35	
Di-tert-butyl peroxide	UN3107	≤100					OP8A			
2,2-Di-(tert-butylperoxy)butane	UN3103	≤52	≥48				OP6A			
1,1-Di-(tert-butylperoxy)cyclohexane	UN3101	>80, ≤100					OP5A			
1,1-Di-(tert-butylperoxy)cyclohexane	UN3103	>52, ≤80	≥20				OP5A			

ORGANIC PEROXIDES TABLE—Continued

Technical Name	ID Number	Concentration (Mass %)	Diluent (Mass %)			Water (Mass %)	Packing Method	Temperature(°C)		Notes
			A	B	I			Control	Emergency	
(1)	(2)	(3)	(4a)	(4b)	(4c)	(5)	(6)	(7a)	(7b)	(8)
1,1-Di-(tert-butylperoxy)cyclohexane	UN3105	≤52	≥48				OP7A			
1,1-Di-(tert-butylperoxy)cyclohexane	UN3106	≤42	≥13		≥45		OP7B			
1,1-Di-(tert-butylperoxy)cyclohexane	UN3107	≤27	≥36				OP8A			22
2,2-Di-(4,4-tert-butylperoxycyclo hexyl)propane	UN3106	≤42			≥58		OP7B			
Di-n-butyl peroxydicarbonate	UN3115	>27, ≤52		≥48			OP7A	-15	-5	
Di-n-butyl peroxydicarbonate	UN3117	≤27		≥73			OP8A	-10	0	
Di-sec-butyl peroxydicarbonate	UN3113	>52, ≤100					OP4A	-20	-10	6
Di-sec-butyl peroxydicarbonate	UN3115	≤52		≥48			OP7A	-15	-5	
Di-(2-tert-butylperoxyisopropyl) benzene(s)	UN3106	>42, ≤100			≥57		OP7B			1,9
Di-(2-tert-butylperoxyisopropyl) benzene(s)	Exempt	≤42			≥58					
Di-(tert-butylperoxy)phthalate	UN3105	>42, ≤52	≥48				OP7A			
Di-(tert-butylperoxy)phthalate *as a paste*	UN3106	≤52					OP7B			21
Di-(tert-butylperoxy)phthalate	UN3107	≤42	≥58				OP8A			
2,2-Di-(tert-butylperoxy)propane	UN3105	≤52	≥48				OP7A			
2,2-Di-(tert-butylperoxy)propane	UN3106	≤42	≥13		≥45		OP7B			
1,1-Di-(tert-butylperoxy)-3,3,5-trimethylcyclohexane	UN3101	>57, ≤100					OP5A			
1,1-Di-(tert-butylperoxy)-3,3,5-trimethylcyclohexane	UN3106	≤57			≥43		OP7B			
1,1-Di-(tert-butylperoxy)-3,3,5-trimethyl cyclohexane	UN3107	≤57	≥43				OP8A			
Dicetyl peroxydicarbonate	UN3116	≤100					OP7B	20	25	
Dicetyl peroxydicarbonate *as a stable dispersion in water.*	UN3119	≤42					OP8A	30	35	
Di-4-chlorobenzoyl peroxide	UN3102	≤77				≥23	OP5B			
Di-4-chlorobenzoyl peroxide *as a paste*	UN3106	≤52					OP7B			21
Di-4-chlorobenzoyl peroxide	Exempt	≤32			≥68					
Dicumyl peroxide	UN3110	>42, ≤100			≤57		OP8B			9
Dicumyl peroxide	Exempt	≤42			≥58					
Dicyclohexyl peroxydicarbonate	UN3112	>91, ≤100					OP5B	5	10	
Dicyclohexyl peroxydicarbonate	UN3114	≤91				≥9	OP3B	5	10	
Didecanoyl peroxide	UN3114	≤100					OP6B	15	20	
Di-2,4-dichlorobenzoyl peroxide	UN3102	≤77				≥23	OP5B			
Di-2,4-dichlorobenzoyl peroxide *as a paste with silicon oil.*	UN3106	≤52					OP7B			
Di-(2-ethylhexyl) peroxydicarbonate	UN3113	>77, ≤100					OP5A	-20	-10	
Di-(2-ethylhexyl) peroxydicarbonate	UN3115	≤77					OP7A	-15	-5	
Di-(2-ethylhexyl) peroxydicarbonate *as a stable dispersion in water.*	UN3117	≤42					OP8A	-15	-5	
Di-(2-ethylhexyl) peroxydicarbonate *as a stable dispersion in water (frozen).*	UN3117	≤42					OP8B	-15	-5	
Diethyl peroxydicarbonate	UN3115	≤27		≥73			OP7A	-10	0	
2,2-Dihydroperoxypropane	UN3102	≤27			≥73		OP5B			
Di-(1-hydroxycyclohexyl) peroxide	UN3106	≤100					OP7B			
Diisobutyryl peroxide	UN3111	>32, ≤52		≥48			OP5A	-20	-10	
Diisobutyryl peroxide	UN3115	≤32		≥68			OP7A	-20	-10	
Diisopropyl peroxydicarbonate	UN3112	>52, ≤100					OP2B	-15	-5	
Diisopropyl peroxydicarbonate	UN3115	≤52		≥48			OP7A	-10	0	
Diisotridecyl peroxydicarbonate	UN3115	≤100					OP7A	-10	0	
Dilauroyl peroxide	UN3106	≤100					OP7B			
Dilauroyl peroxide *as a stable dispersion in water*	UN3109	≤42					OP8A			
Di-(2-methylbenzoyl) peroxide	UN3112	≤87				≥13	OP5B	30	35	
2,5-Dimethyl-2,5-di-(benzoyl peroxy) hexane	UN3102	>82, ≤100					OP5B			
2,5-Dimethyl-2,5-di-(benzoyl peroxy) hexane	UN3106	≤82			≥18		OP7B			
2,5-Dimethyl-2,5-di-(benzoyl peroxy) hexane	UN3104	≤82				≥18	OP5B			
2,5-Dimethyl-2,5-di-(tert-butyl peroxy)hexane	UN3105	>52, ≤100					OP7A			
2,5-Dimethyl-2,5-di-(tert-butyl peroxy)hexane	UN3106	≤52			≥48		OP7B			
2,5-Dimethyl-2,5-di-(tert-butyl peroxy)hexyne-3	UN3103	>52, ≤100					OP5A			
2,5-Dimethyl-2,5-di-(tert-butyl peroxy)hexyne-3	UN3106	≤52			≥48		OP7B			
2,5-Dimethyl-2,5-di-(2-ethylhexanoylperoxy)hexane	UN3115	≤100					OP7A	20	25	
2,5-Dimethyl-2,5-dihydroperoxyhexane	UN3104	≤82				≥18	OP6B			
2,5-Dimethyl-2,5-di-(3,5,5-trimethylhexanoylperoxy)hexane.	UN3105	≤77	≥23				OP7A			
Dimyristyl peroxydicarbonate	UN3116	≤100					OP7B	20	25	
Dimyristyl peroxydicarbonate *as a stable dispersion in water.*	UN3119	≤42					OP8A	20	25	
Di-n-nonanoyl peroxide	UN3116	≤100					OP7B	0	10	
Di-n-octanoyl peroxide	UN3114	≤100					OP5B	10	15	
Diperoxy azelaic acid	UN3116	≤27			≥73		OP7B	35	40	
Diperoxy dodecane diacid	UN3116	>13, ≤42			≥58		OP7B	40	45	
Diperoxy dodecane diacid	Exempt	≤13								
Di-(2 Phenoxyethyl) peroxydicarbonate	UN3102	>85, ≤100					OP5B			
Di-(2 phenoxyethyl) peroxydicarbonate	UN3106	≤85				≥15	OP7B			
Dipropionyl peroxide	UN3117	≤27		≥73			OP8A	15	20	
Di-n-propyl peroxydicarbonate	UN3113	≤100					OP4A	-25	-15	
Distearyl peroxydicarbonate	UN3106	≤87			≥13		OP7B			
Disuccinic acid peroxide	UN3102	>72, ≤100					OP4B			18
Disuccinic acid peroxide	UN3116	≤72				≥28	OP7B	10	15	18
Di-(3,5,5-trimethyl-1,2-dioxo-lanyl-3) peroxide *as a paste.*	UN3116	≤52					OP7B	30	35	21

ORGANIC PEROXIDES TABLE—Continued

Technical Name	ID Number	Concentration (Mass %)	Diluent (Mass %)			Water (Mass %)	Packing Method	Temperature(°C)		Notes
			A	B	I			Control	Emergency	
(1)	(2)	(3)	(4a)	(4b)	(4c)	(5)	(6)	(7a)	(7b)	(8)
Di-(3,5,5-trimethylhexanoyl) peroxide	UN3115	≦82	≧18				OP7A			
Ethyl-3,3-di-(tert-amylperoxy) butyrate	UN3105	≦67	≧33				OP7A			
Ethyl-3,3-di-(tert-butylperoxy) butyrate	UN3103	>77, ≦100					OP5A			
Ethyl-3,3-di-(tert-butylperoxy) butyrate	UN3105	≦77	≧23				OP7A			
Ethyl-3,3-di-(tert-butylperoxy) butyrate	UN3106	≦52			≧48		OP7B			
3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane	UN3102	>52, ≦100					OP4B			
3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane	UN3105	≦52	≧48				OP7A			
3,3,6,6,9,9-Hexamethyl-1,2,4,5-tetraoxacyclononane	UN3106	≦52			≧48		OP7B			
Isopropylcumyl hydroperoxide	UN3109	≦72	≧28				OP8A			14
p-Menthyl hydroperoxide	UN3105	>55, ≦100					OP7A			
p-Menthyl hydroperoxide	UN3109	≦55	≧45				OP8A			14
Methylcyclohexanone peroxide(s)	UN3115	≦67		≧33			OP7A	35	40	
Methyl ethyl ketone peroxide(s)	UN3101	≦52	≧48				OP5A			5
Methyl ethyl ketone peroxide(s)	UN3105	≦45	≧55				OP7A			5
Methyl ethyl ketone peroxide(s)	UN3107	≦40	≧60				OP8A			5,23
Methyl isobutyl ketone peroxide(s)	UN3105	≦62	≧18				OP7A			5
Organic peroxide, solid, temperature controlled	UN3114						OP2B			12
Organic peroxide, liquid, sample	UN3103						OP2A			12
Organic peroxide, liquid, temperature controlled	UN3113						OP2A			12
Organic peroxide, solid, sample	UN3104						OP2B			12
Peroxyacetic acid, type D, stabilized	UN3105	≦43					OP7A			20
Peroxyacetic acid, type E, stabilized	UN3107	≦43					OP8A			20
Peroxyacetic acid, type F, stabilized	UN3109	≦43					OP8A			20
Pinanyl hydroperoxide	UN3105	>55, ≦100					OP7A			
Pinanyl hydroperoxide	UN3109	≦55	≧45				OP8A			14
Tetrahydronaphthyl hydroperoxide	UN3106	≦100					OP7B			
1,1,3,3-Tetramethylbutyl hydroperoxide	UN3105	≦100					OP7A			
1,1,3,3-Tetramethylbutylperoxy-2-ethylhexanoate	UN3115	≦100					OP7A	20	25	
2,4,4-Trimethylpentyl-2-peroxy phenoxyacetate	UN3115	≦37		≧63			OP7A	-10	0	

* * * * *

§ 173.225 [Amended]

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

a. In paragraph (c)(4)(i), "Type C" is revised to read "Type B".

b. In the § 173.225(d)(1) Table, in the Table heading, the wording "Table 11.2(A)—" is removed.

c. In the § 173.225(d)(1) Table, in the Column 2 heading, the wording "(see 9.4.7)" is removed.

d. In the § 173.225 (d)(1) Table, for the entry "Steel drum", in the columns titled "OP7A" and "OP8A", "60" and "225" are removed and replaced with "60 L" and "225 L", respectively.

e. In the § 173.225(d)(1) Table, for the entry "Fiber drum [3]", in the column titled "OP4A [2]", "5 KG" is removed and replaced with "5/25 kg", and in the column titled "OP5A [2], the term "50 kg" is removed and replaced with "25 kg".

f. In the § 173.225(d)(2) Table, in the Column 2 heading, the wording "(see 9.4.7)" is removed.

g. In the § 173.225(d)(2) Table, the column heading "OP2B [2]" is removed and replaced with the column heading "OP2B [2,3]".

h. In the § 173.225(d)(2) Table, in the column heading "OP5B [2]", for the entries "Plastics receptacle with outer fiberboard box.", "Plastics receptacle with outer plastics drum." and "Plastics receptacle with outer solid plastics box.", "30 kg" is removed and replaced with "25 kg" each place it appears.

i. In the § 173.225(d)(2) Table, in the column heading "OP6B [2]", for the entries "Plastics receptacle with outer fiberboard box.", "Plastics receptacle with outer plastics drums." and "Plastics receptacle with outer solid plastics box.", "60 kg" is removed and replaced with "50 kg" each place it appears.

§ 173.226 [Amended]

155. In § 173.226, the following changes are made:

a. In paragraph (b) introductory text, a new sentence is added after the third sentence to read "Outer 1A2 and 1H2 drums must withstand a hydrostatic test pressure of 100 kPa (15 psi).".

b. In paragraph (c)(2), in the fourth sentence, "screw-type" is removed.

§ 173.227 [Amended]

156. In § 173.227, the following changes are made:

a. In paragraph (b) introductory text, a new sentence is added after the third sentence to read "Outer 1A2 and 1H2 drums must withstand a hydrostatic test pressure of 100 kPa (15 psi).".

b. In paragraph (b)(3)(ii)(D), "(0.625 inch)" is revised to read "(0.0625 inch)".

c. In paragraph (b)(3)(iii)(D), "(0.62 inch)" is revised to read "(0.0625 inch)" and "(0.43 inch)" is revised to read "(0.043 inch)".

157. In § 173.230, paragraphs (b)(1)(v) and (b)(2)(v) are added to read as follows:

§ 173.230 Non-bulk packagings for ORM-D materials.

* * * * *

(b) * * * (1) * * *

(v) Cartridges, power devices which are used to project fastening devices.

(2) * * *

(v) Cartridges, power devices which are used to project fastening devices and 22 caliber rim-fire cartridges may be packaged loose in strong outside packagings.

* * * * *

§ 173.230 [Amended]

158. In addition, in § 173.230, in paragraphs (b)(1)(iii) and (b)(2)(iii), the word "and" is removed; and in paragraphs (h)(1)(iv) and (b)(2)(iv), the period is removed at the end of the sentence and replaced with "; and".

159. In § 173.240, paragraphs (a) and (c) are revised to read as follows:

§ 173.240 Bulk packaging for certain low hazard solid materials.

* * * * *

(a) *Rail cars:* Class DOT 103, 104, 105, 109, 111, 112, 114, or 115 tank car tanks; Class 106 or 110 multi-unit tank car tanks; and metal non-DOT specification,

sift-proof tank car tanks and sift-proof closed cars.

* * * * *

(c) *Portable tanks and closed bulk bins*: DOT 51, 52, 53, 56, 57 and 60 portable tanks; IMO type 1, 2 and 5, and IM 101 and IM 102 portable tanks; marine portable tanks conforming to 46 CFR part 64; and sift-proof non-DOT specification portable tanks and closed bulk bins.

160. In § 173.241, paragraph (c) is revised to read as follows:

§ 173.241 Bulk packagings for certain low hazard liquid and solid materials

* * * * *

(c) *Portable tanks*: DOT 51, 52, 56, 57 and 60 portable tanks; IMO type 1, 2 and 5, and IM 101 and IM 102 portable tanks; marine portable tanks conforming to 46 CFR part 64; and non-DOT specification portable tanks suitable for transport of liquids.

§ 173.242 [Amended]

161. In § 173.242, in paragraph (a), the last sentence is removed.

§ 173.243 [Amended]

162. In § 173.243, the following changes are made:

a. In paragraph (a), in the first sentence, the wording "fusion-welded" is added immediately after "115" and before "tank car tanks", and the second, third, and fourth sentences are removed.

b. In paragraph (b)(2), the wording "DOT 406," is removed.

163. In § 173.244, the section heading and paragraph (b) are revised to read as follows:

§ 173.244 Bulk packaging for certain pyrophoric liquids (Division 4.2) and poisonous liquids with inhalation hazards (Division 6.1).

* * * * *

(b) *Cargo tanks: Specifications MC* 330 and MC 331 cargo tank motor vehicles and, except for Division 4.2 materials, MC 312 and DOT 412 cargo tank motor vehicles.

* * * * *

§ 173.244 [Amended]

164. In addition, in § 173.244, in paragraph (a), the wording "fusion-welded" is added immediately after "114" and before "tank car tanks", and the last sentence is removed.

165. In § 173.245, paragraph (a) is added to read as follows:

§ 173.245 Bulk packaging for extremely hazardous materials such as poisonous gases (Division 2.3).

* * * * *

(a) Tank car tanks and multi-unit tank car tanks, when approved by the Associate Administrator for Hazardous Materials Safety.

* * * * *

§ 173.249 [Amended]

166. In § 173.249, the following changes are made:

a. In paragraph (b), two sentences are added at the end of the paragraph to read "The total quantity in one tank may not be less than 88 percent nor more than 96 percent of the volume of the tank. Cargo tanks in bromine service built prior to August 31, 1991 may continue in service under the requirements contained in § 173.252(a)(4) of this part in effect on September 30, 1991.".

b. In paragraph (c), in the first sentence, the word "intermodal" is removed, and a new sentence is added at the end of the paragraph to read "The total quantity in one tank may not be less than 88 percent nor more than 92 percent of the volume of the tank.".

167. In § 173.302, paragraph (h) is added to read as follows:

§ 173.302 Charging of cylinders with non-liquefied compressed gases.

* * * * *

(h) *Poisonous gases.* Packagings containing Division 2.3 materials must conform to the requirements of § 173.40 of this part.

§ 173.302 [Amended]

168. In addition, in § 173.302, the following changes are made:

a. In paragraph (a) introductory text, the wording "(except gas in solution or poisonous gas)" is revised to read "(except gas in solution)".

b. In paragraph (a)(4)(iii), the reference "RR–C–901b" is revised to read "RR–C–901c" each place it appears, and the wording "dated August 1, 1967" is revised to read "dated January 15, 1981".

169. In § 173.304, paragraph (g) is added to read as follows:

§ 173.304 Charging of cylinders with liquefied compressed gas.

* * * * *

(g) *Poisonous mixtures.* Packagings containing Division 2.3 materials must conform to the requirements of § 173.40 of this part.

§ 173.304 [Amended]

170. In addition, in § 173.304, the following changes are made:

a. In paragraph (a) introductory text, the wording "except gas in solution or poisonous gas" is revised to read "except gas in solution".

b. In paragraph (a)(1), the wording "or poisonous material (class A, B, or irritating material)," is revised to read "or poisonous material (Division 6.1 or 2.3),".

c. In paragraph (a)(4)(ii), the reference "RR–C–901b" is revised to read "RR–C–901c" each place it appears.

§ 173.305 [Amended]

171. In § 173.305, the following changes are made:

a. In paragraph (a), the reference "§ 173.300(a)" is removed and replaced with "§ 173.115".

b. In paragraph (d), the wording "any poisonous material, Class A, or irritating material" is revised to read "any poisonous material (Division 6.1 or 2.3)"; and the wording "§ 173.326(a) or § 173.381(a)" is revised to read "§§ 173.115 or 173.132".

172. In § 173.306, paragraph (i) is added to read as follows:

§ 173.306 Limited quantities of compressed gases.

* * * * *

(i) To determine the flammability of aerosols, the following test method must be applied:

(1) Either a mixture of 13 percent or less (by volume) with air forms a flammable mixture or the flammable range with air is wider than 12 percent regardless of the lower limit. These limits shall be determined at atmospheric temperature and pressure. The method of sampling and test procedure shall be acceptable to the Bureau of Explosives and approved by the Associate Administrator for Hazardous Materials Safety.

(2) Using the Bureau of Explosives' Flame Projection Apparatus, the flame projects more than 18 inches beyond the ignition source with valve opened fully or the flame flashes back and burns at the valve with any degree of valve opening.

(3) Using the Bureau of Explosives' Open Drum Apparatus, there is any significant propagation of flame away from the ignition source.

(4) Using the Bureau of Explosives' Closed Drum Apparatus, there is any explosion of the vapor-air mixture in the drum.

§ 173.306 [Amended]

173. In § 173.306, the following changes are made:

a. In paragraph (a) introductory text, a third sentence is added at the end, and in paragraph (h) introductory text, a new sentence is added immediately after the first sentence, to read "Each package may not exceed 30 kg (66 pounds) gross weight."

b. In paragraphs (a)(3)(i) and (b)(1), the wording "(27.7 fluid ounces)" is

revised to read "(1 liter)" both places it appears.

c. In paragraph (b) introductory text, the wording "(except poisonous gases as defined by § 173.326)" is revised to read "(except poisonous gases as defined by § 173.115(a)(3) of this part)".

d. In paragraph (b)(3), in the first sentence, the wording "is nonpoisonous and" is revised to read "is, except for Division 6.1 Packing Group III material, nonpoisonous and".

§ 173.308 [Amended]

174. In § 173.308, the following changes are made:

a. In paragraph (a)(1), the wording "2.3 fluid ounces" is revised to read "70 ml (2.3 fluid ounces)".

b. In paragraph (a)(2), "60 °F" is revised to read "15 °C (59 °F)".

c. In paragraph (a)(3), "130 °F" is revised to read "55 °C (131 °F)".

d. In paragraph (c), in the second sentence, the wording "25 feet" is revised to read "8 m (26 feet)".

175. In § 173.314, paragraph (c) is revised and paragraph (g)(3) is added to read as follows:

§ 173.314 Requirements for compressed gases in tank car tanks.

* * * * *

(c) *Authorized gases, filling densities, and tank car tanks.* A compressed gas offered for transportation in a tank car tank must be prepared in accordance with paragraphs (b) through (i) of this section, §§ 172.101, 173.10, 173.24b, and 173.31 of this subchapter, and the following table (for cryogenic liquids, see § 173.319 of this subpart):

Kind of gas	Maximum permitted filling density (see Note 1)	Authorized tank car	Notes
Ammonia, anhydrous, or ammonia solutions>50 percent ammonia	Note 21	105A300W, 112S340W, 114S340W	24
	Note 21	106A500X	
Ammonia, solutions with>35 percent≦50 percent ammonia by mass	Note 21	105A, 112A, 114A, 111A100W4	
Argon, compressed	Note 20	107A	
Boron trichloride	Note 21	105A300W, 106A500X	
Carbon dioxide, refrigerated liquid	Note 5	105A500W	6
Chlorine	125	105A500W	12, 30
	125	106A500X	
Chlorine trifluoride	Note 21	106A500X, 110A500W	
Chlorine pentafluoride	Note 21	106A500X, 110A500W	
Dimethylamine, anhydrous	59	106A500X	
	61	112T340W, 112J340W	4
	62	105A300W	4, 23
Dimethyl ether	59	106A500X, 110A500W	
	62	105A300W	4, 23
Dinitrogen tetroxide or nitrogen tetroxide (see Nitrogen dioxide)			
Division 2.1 materials not specifically provided for in this table	Note 21	105A, 111A100W4, 112T, 112J, 114T, 114J	4, 13, 23
	Note 21	106A, 110A	7
Division 2.2 materials not specifically identified in this table	Note 21	105A, 109A, 111A100W4, 112A, 114A	13
	Note 21	106A, 110A	7
Division 2.3, Hazard Zone A, materials not specifically identified in this table	None	None	22
Division 2.3, Hazard Zone B, materials not specifically identified in this table	Note 21	105J300W, 112J340W, 112T340W, 114J340W, 114T340W	3, 9
	Note 21	106A, 110A	7
Division 2.3, Hazard Zone C, materials not specifically identified in this table	Note 21	105J300W, 112J340W, 112T340W, 114J340W, 114T340W	3, 9
	Note 21	106A, 110A	7
Division 2.3, Hazard Zone D, materials not specifically identified in this table	Note 21	105J300W, 109A, 112J340W, 112T340W, 114J340W, 114T340W	9, 15
	Note 21	106A, 110A	7
Ethylamine	Note 21	105A100W, 111A100W4, 112J200W, 112T200W, 114J340W, 114T340W	4, 23
	Note 21	106A, 110A	
Helium	Note 20	107A	
Hydrogen	Note 20	107A	
Hydrogen chloride, refrigerated liquid	Note 18	105A600W	2
Hydrogen sulfide	68	106A800X	17, 30
Methylamine, anhydrous	62	105A300W	7, 8
	61	112T340W, 112J340W	4, 23
	60	106A500X	4
Methyl bromide	Note 21	105A100W, 111A100W4	29, 30
	Note 21	106A	7
Methyl chloride	85	112T340W, 112J340W	4
	86	105A300W	4, 23
	84	106A500X	
Methyl mercaptan	82	105A300W	4, 23
	80	106A500X	7
Nitrogen	Note 20	107A	
Nitrogen dioxide, liquefied	Note 21	105A500W	
	Note 21	106A500X, 110A500W	
Nitrosyl chloride	124	105A300W	10, 30
	110	106A800X	7, 11
Nitrous oxide	Note 5	105A500W	6, 30
Oxygen	Note 20	107A	
Phosgene	Note 21	106A500X	7
Sulfur dioxide	125	105A200W	30
	125	106A500X, 110A500W	
Sulfuryl fluoride	120	105A500W	

Kind of gas	Maximum permitted filling density (see Note 1)	Authorized tank car	Notes
Vinyl fluoride, inhibited	Note 19	105A600W	17, 23

Notes:
1 The filling density for liquefied gases is hereby defined as the percent ratio of the weight of gas in the tank to the weight of water that the tank will hold. For determining the water capacity of the tank in pounds, the weight of one gallon of water at 15.55°C (60°F) in air is 8.32828 pounds.
2 Each tank must be equipped with one or more safety relief devices of an approved design. The discharge outlet of each safety relief device must be connected to a manifold having an unobstructed discharge area of at least 1¼ times the total discharge area of the safety relief devices connected to the manifold. All manifolds must be connected to a single common header having an unobstructed discharge outlet pointing upward and extending above top of the car. The header and the header outlet must each have an unobstructed discharge area at least equal to the total discharge area of the manifolds connected to the header. The header outlet must be equipped with an approved ignition device which will instantly ignite any hydrogen discharged through the safety relief device.
3 If the material has a secondary hazard in Division 2.1, then the provisions of Note 4 are applicable.
4 For single unit tank car tanks, interior pipes of loading and unloading valves must be equipped with excess-flow valves of approved design. For single unit tank car tanks built after December 30, 1971, the interior pipes of gaging devices with an opening for the passage of lading exceeding 1.52 mm (0.060 inch) diameter must be equipped with excess flow valves of approved design. The interior pipes of sampling devices must be equipped with excess flow valves of approved design. The protective housing cover must be provided with an opening above each safety relief valve which is concentric with the discharge of the valve and which has an area at least equal to the valve outlet area. Each protective housing cover opening must be provided with a weatherproof cover designed for vertical discharge.
5 The liquid portion of the gas at 0°F must not completely fill the tank.
6 Each tank must be insulated with an approved material of a thickness so that the thermal conductance is not more than 0.03 B.t.u. per square foot, per degree F. differential in temperature per hour, except that the insulation thickness directly over the center sills may be reduced to give thermal conductance not exceeding 0.04 B.t.u. per square foot, per degree F. differential in temperature per hour (this reduction permits an anchorage not exceeding seven inches from top of center sills to bottom of tank). Tank must be equipped with one safety relief valve of approved design set to open at a pressure not exceeding 75 percent of the test pressure of the tank and one frangible disc of approved design set to function at a pressure less than the test pressure of the tank. The discharge capacity of each of these safety relief devices must be sufficient to prevent building up of pressure in the tank in excess of 82.5 percent of the test pressure of the tank. Tanks must be equipped with two pressure-regulating valves of approved design set to open at a pressure not to exceed 350 psi on 105A500–W tanks and at a pressure not to exceed 400 psi on 105A600–W tanks. Each regulating valve and safety relief device must have its final discharge piped to the outside of the protective housing. See § 179.102–1 of this subchapter for additional requirements.
7 Rail freight and highway only. (See §§ 174.204 and 177.834(m) of this subchapter for special requirements.)
8 Each tank must be equipped with adequate safety relief devices of the fusible plug type having a yield temperature not over 76.66°C (170°F), nor less than 69.44°C (157°F). Each device must be resistant to extrusion of the fusible alloy and leak tight at 55°C (130°F). Each valve outlet must be sealed by a threaded cap or a threaded solid plug. In addition, all valves must be protected by a metal cover.
9 Except for materials with a secondary hazard in Division 2.1, DOT 105J300ALW tank cars are also authorized.
10 Tanks and any ancillary equipment in contact with the lading, such as manhole covers, venting, loading and discharge valves, safety relief valves, check valves, and eduction pipes, must be made of metal or clad with metal not subject to rapid deterioration by the lading. Cork must be used as an insulating material.
11 Nitrosyl chloride must be transported in nickel-clad tanks with safety relief devices incorporating a fusible plug set to function at a temperature 79.44°C (175°F). Safety relief devices must be vapor tight at 54.44°C (130°F).
12 Interior pipes of liquid discharge valves must be equipped with excess flow valves of approved design. The quantity of chlorine loaded into a single-unit tank car tank must not be loaded in excess of the normal lading weights nor in excess of 90 tons. Tank car tanks built to DOT 105A500W may be stenciled either DOT 105A300W or DOT 105A500W with the size and type of safety relief device required by the stenciled specification.
13 If the commodity meets the definition of a refrigerant gas or dispersant gas in § 173.115(j) of this part, tank car tanks must be marked "DISPERSANT GAS" or "REFRIGERANT GAS" or with the proper shipping name.
14 Lading must be covered with a dry inert gas padding to render the vapor space nonflammable at 105°F.
15 If the material has a secondary hazard in Division 2.1, then Class DOT 109A tank car tanks are not authorized. Specification DOT 112 tank car tanks must conform to Class DOT 112T or DOT 112J requirements and DOT 114 tank car tanks must conform to Class DOT 114T or DOT 114J requirements. The provisions of Notes 4 and 23 are also applicable.
16 [Reserved]
17 See paragraph (g) of this section.
18 89 percent maximum to 80.1 percent minimum at a maximum test pressure of 90 psig, when offered for transportation.
19 59.6 percent maximum to 53.6 percent minimum at a maximum test pressure of 105 psig, when offered for transportation.
20 The gas pressure at 54.44°C (130°F) in any noninsulated Class DOT 107A tank may not exceed 7/10 of the marked test pressure, except that a tank may be charged with helium to a pressure 10 percent in excess of the marked maximum gas pressure at 54.44°C (130°F) of each tank.
21 See § 173.24b of this subchapter.
22 See § 173.245 of this subchapter.
23 Class 105 tanks must meet 105J requirements if: (1) the tank was built after August 31, 1981; or (2) the tank exceeds 18,500 gallons and was built before September 1, 1981. Class 111 tanks must meet 111J requirements if the tank exceeds 18,500 gallons. Class DOT 111 tank cars built after March 1, 1984 are not authorized for the transportation of Division 2.1 materials.
24 Class 105 tanks must meet 105S requirements if: (1) the tank was built after August 31, 1981; or (2) the tank exceeds 18,500 gallons and was built before September 1, 1981.
25 [Reserved]
26 [Reserved]
27 [Reserved]
28 [Reserved]
29 DOT 111A100W4 tank car tanks built after September 30, 1991 are not authorized.
30 Class 105 tanks must meet 105J requirements if the tank was built after September 30, 1991.

* * * * *

(g) * * *

(3) See § 179.102–17 of this subchapter for additional requirements.

* * * * *

§ 173.314 [Amended]

176. In addition, in § 173.314, the following changes are made:

a. In paragraph (a), the reference "§ 173.300" is revised to read "§ 173.115".

b. In paragraph (b)(3), "For cars" is revised to read "For tanks".

c. In paragraph (b)(6), "approved by the AAR Tank Car Committee" is removed.

177. In § 173.315, paragraph (a)(2) is removed; the section heading is revised; the Table in paragraph (a) is amended by revising, removing and adding in alphabetical order the following entries, and by revising and adding in numerical order the following notes to the Table, as indicated; and the last sentence of introductory text in paragraph (c) is revised to read as follows:

§ 173.315 Compressed gases in cargo tanks and portable tanks.

(a) * * *

Kind of gas	Maximum permitted filling density		Specification container required	
	Percent by weight (see note 1)	Percent by volume (see par. (f) of this section	Type (see note 2)	Minimum design pressure (psig)
* * * * *	*	*	*	*
[REVISE]				
* * * * *	*	*	*	*
Chlorine	125	See Note 7	DOT-51, MC-330, MC-331.	225; See Notes 4 and 8.
Methyl mercaptan	80	90	DOT-51, MC-330, MC-331; See Note 23.	100.
Sulfur dioxide (tanks not over 1,200 gallons water capacity)	125	87.5	DOT-51, MC-330, MC-331; See Note 24.	150; See Note 4.
Sulfur dioxide (tanks over 1,200 gallons water capacity)	125	87.5	DOT-51, MC-330, MC-331; See Note 24.	125; See Note 4.
Sulfur dioxide (optional portable tank 1,000-2,000 pounds water capacity, fusible plug).	125	See Note 6	DOT-51; See Note 24.	225.
* * * * *	*	*	*	*
[ADD]				
* * * * *	*	*	*	*
Ammonia, anhydrous or Ammonia solutions with greater than 50 percent ammonia (see Notes 14 and 17).	58	82, See Note 5	DOT-51, MC-330, MC-331; See Notes 12 and 17.	265; See Note 17.
Ammonia solutions with more than 35 percent but not more than 50 percent ammonia.	See par. (c) of this section.	See Note 7	DOT-51, MC-330, MC-331; see Note 12.	100; See par. (c) of this section.
Dimethylamine, anhydrous	59	See Note 7	DOT-51, MC-330, MC-331.	150.
Division 2.1, materials not specifically provided for in this table	See par. (c) of this section.	See Note 7	DOT-51, MC-330, MC-331.	See Note 18.
Division 2.2, materials not specifically provided for in this table	See par. (c) of this section.	See Note 7	DOT-51, MC-330, MC-331.	See Note 19.
Division 2.3, Hazard Zone A, materials not specifically provided for in this table.	See par. (c) of this section.	See Note 7	DOT-51, MC-330, MC-331; See Note 23.	See Note 20.
Division 2.3, Hazard Zone B, materials not specifically provided for in this table.	See par. (c) of this section.	See Note 7	DOT-51, MC-330, MC-331; See Note 23.	See Note 20.
Division 2.3, Hazard Zone C, materials not specifically provided for in this table.	See par. (c) of this section.	See Note 7	DOT-51, MC-330, MC-331; See Note 24.	See Note 21.
Division 2.3, Hazard Zone D, materials not specifically provided for in this table.	See par. (c) of this section.	See Note 7	DOT-51, MC-330, MC-331; See Note 25.	See Note 22.
Methylamine, anhydrous	60	See Note 7	DOT-51, MC-330, MC-331; See Note 24.	See Note 22.
Trimethylamine, anhydrous	57	See Note 7	DOT-51, MC-330, MC-331.	150.
* * * * *	*	*	*	*
[REMOVE]				
* * * * *	*	*	*	*
"Anhydrous ammonia"				
"Anhydrous dimethylamine"				
"Anhydrous monomethylamine"				
"Anhydrous trimethylamine"				
"Ammonia solution"				
* * * * *	*	*	*	*

* * * * *

[REVISE]

* * * * *

Note 4: Material must be steel. Packagings must have a corrosion allowance of 20 percent or 0.10 inch, whichever is less, added to the metal thickness. The minimum wall thickness for chlorine packagings is 0.300 inch for stainless steel or 0.625 inch for carbon steel, including corrosion allowance.

Note 8: Chlorine packagings may be shipped only if the contents are to be unloaded at one unloading point.

Note 12: No aluminum, copper, silver, zinc or an alloy of any of these metals shall be used in packaging construction where it comes into contact with the lading.

* * * * *

[ADD]

* * * * *

Note 18: The minimum packaging design pressure must not be less than the vapor pressure at the reference temperature of the lading plus one percent or 173.4 kPa (25 psig), whichever is less.

Note 19: The minimum packagings design pressure must not be less than the vapor pressure at the reference temperature of the lading.

Note 20: The minimum packaging design pressure must not be less than 1.5 times the vapor pressure of the lading at 46°C (115°F).

Note 21: The minimum packaging design pressure must not be less than 1.3 times the vapor pressure of the lading at 46°C (115°F).

Note 22: The minimum packaging design pressure must not be less than 1.1 times the vapor pressure of the lading at 46°C (115°F).

Note 23: Packagings must be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(b) of this part. Thickness of stainless steel for shell and heads must be the greater of 7.62 mm (0.300 inch) or the thickness required for the packaging at its minimum design pressure.

Note 24: Packagings must be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(b) of this part. Thickness of stainless steel for shell and heads must be the greater of 6.35 mm (0.250 inch) or the thickness required for the packaging at its minimum design pressure.

Note 25: Packagings must be made of stainless steel except that steel other than stainless steel may be used in accordance with the provisions of § 173.24b(b) of this part. Thickness for shell and heads must be as calculated for the packaging at its minimum design pressure.

* * * * *

(c) * * * The outage and filling limits for liquefied gases must be as prescribed in § 173.24b of this part, except that this requirement does not apply to:

* * * * *

§ 173.318 [Amended]

178. In § 173.318, in the parenthetical expression in paragraph (e), the wording "(see §§ 173.33(d)(1)(ii) and 178.338–9(b) of this subchapter)" is revised to read "(see paragraph (g)(3) of this section and § 178.338–9(b) of this subchapter)".

179. In § 173.323, paragraphs (b)(1) and (b)(4) are revised to read as follows:

§ 173.323 Ethylene oxide.

* * * * *

(b) * * *

(1) In 4G fiberboard boxes with inner glass ampoules or vials. Total quantity of ethylene oxide may not exceed 100 grams (3.5 ounces) per package. The completed package must be capable of passing Packing Group I performance tests.

* * * * *

(4) In specification cylinders, as authorized for any compressed gas except acetylene. Pressurizing valves and insulation are required for cylinders over 4 L (1 gallon) capacity. Eductor tubes must be provided for cylinders over 19 L (5 gallons) capacity. Cylinders must be seamless or welded steel (not brazed) with a nominal capacity of no more than 115 L (30 gallons) and may not be liquid full below 82 °C (180 °F). Before each refilling, each cylinder must be tested for leakage at no less than 103.4 kPa (15 psig) pressure. In addition, each cylinder must be equipped with a fusible type relief device with yield temperature of 69 °C to 77 °C (157 °F to 170 °F). The capacity of the relief device and the effectiveness of the insulation must be such that the charged cylinder will not explode when tested by the method described in CGA Pamphlet C–14 or other equivalent method.

* * * * *

§ 173.323 [Amended]

180. In addition, in § 173.323, in paragraph (a), the wording "copper, silver mercury or any of their alloys" is revised to read "silver mercury or any of its alloys or copper", and a sentence is added immediately after the first sentence to read: "Copper alloys may be used only where gas mixtures do not contain free acetylene at any concentration that will form copper acetylene.".

181. In § 173.421–1, the section heading and paragraph (a) are revised to read as follows:

§ 173.421–1 Additional requirements for excepted packages containing Class 7 (radioactive) materials.

(a) Excepted packages prepared for shipment under the provisions of §§ 173.421, 173.422, 173.424, or 173.427 of this subpart must be certified as being acceptable for transportation by having a notice enclosed in or on the package, included with the packing list, or otherwise forwarded with the package. This notice must include the name of the consignor or consignee and the statement "This package conforms to the conditions and limitations specified in 49 CFR 173.421 for radioactive material, excepted package-limited quantity of material, UN2910; 49 CFR 173.422 for radioactive material, excepted package—instruments or articles, UN2910; 49 CFR 173.424 for radioactive material, excepted package—articles manufactured from natural or depleted uranium or natural thorium, UN2910; or 49 CFR 173.427 for radioactive material, excepted package—empty packaging, UN2910," as appropriate.

* * * * *

§ 173.421–2 [Amended]

182. In § 173.421–2, paragraph (d) is removed.

§ 173.465 [Amended]

183. In § 173.465, in paragraph (d), "¶f" is revised to read "of".

§ 173.471 [Amended]

184. In § 173.471, in the parenthetical following paragraph (g), the last sentence "The information collection requirements contained in paragraph (e) were approved under control number 2137–0514." is removed.

§§ 173.22, 173.34, 173.300 [Amended]

185. In addition to the amendments set forth above, part 173 is amended by removing the phrase "Office of Hazardous Materials Transportation" and, inserting in its place, the phrase "Associate Administrator for Hazardous Materials Safety" in the following sections:

(a) Section 173.22a(b)
(b) Section 173.34(e)(1)(iv)
(c) Section 173.300a(b)(1)
(d) Section 173.300a(e)
(e) Section 173.300b(b)(1)

§§ 173.471, 173.473 [Amended]

186. In addition to the amendments set forth above, part 173 is amended by removing the phrase "OHMT" and, inserting in its place, the phrase "the Associate Administrator for Hazardous Materials Safety" in the following sections:

(a) Section 173.471(f)
(b) Section 173.473(a)(1)
(c) Section 173.473(a)(3)

§§ 173.11, 173.32a, 173.34, 173.300a, 173.300b, 173.300c, 173.305, 173.315, 173.457 [Amended]

187. In addition to the amendments set forth above, part 173 is amended by removing the phrase "Director, OHMT" and, inserting in its place, the phrase "Associate Administrator for Hazardous Materials Safety" each place it appears in the following sections:

(a) Section 173.11(a)
(b) Section 173.32a(c)
(c) Section 173.32a(d)
(d) Section 173.32a(h) introductory text
(e) Section 173.32a(h)(2) introductory text
(f) Section 173.32a(h)(3)
(g) Section 173.34(e)(6)
(h) Section 173.34(i)
(i) Section 173.34(i)(4)(i)
(j) Section 173.34(l) introductory text
(k) Section 173.34(l)(2)
(l) Section 173.34(l)(3)
(m) Section 173.300a(c)
(n) Section 173.300a(d)
(o) Section 173.300a(e)
(p) Section 173.300a(g)
(q) Section 173.300a(h)
(r) Section 173.300a(i)
(s) Section 173.300b(c)
(t) Section 173.300b(d)
(u) Section 173.300b(e)
(v) Section 173.300b(f)
(w) Section 173.300b(g)
(x) Section 173.300c(a) introductory text
(y) Section 173.300c(b)
(z) Section 173.305(c)(1)
(aa) Section 173.315(i)(12)
(bb) Section 173.457(b)(4)

Appendix B [Amended]

188. In appendix B to part 173, in paragraph 6., the phrase "a height of 1.2 meters (3.94 feet) onto solid concrete" is removed and replaced with the phrase "a height determined in accordance with § 178.603(d) of this subchapter onto a rigid non-resilient, flat and horizontal surface".

Appendix E [Amended]

189. In appendix E to part 173, in 2.c.(3)(A), the reference "2.3.2" is revised to read "2.c.(2)".

190. Appendix G is added to part 173 to read as follows:

Appendix G to Part 173—Definition of Regulated Medical Waste

1. *General*

A "regulated medical waste" is a waste material listed in the following table that is—

(a) Generated in the diagnosis, treatment (e.g., provision of medical services), or immunization of human beings or animals;

(b) In research pertaining thereto; or

(c) In the production or testing of biologicals.

TABLE—REGULATED MEDICAL WASTE

Waste class	Description
(1) Cultures and Stocks.	Cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.
(2) Pathological Wastes.	Human pathological wastes, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.
(3) Human Blood and Blood Products.	(1) Liquid waste human blood; (2) products of blood; (3) items saturated and/or dripping with human blood; or (4) items that were saturated and/or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also included in this category.
(4) Sharps	Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.
(5) Animal Waste.	Contaminated animal carcasses, body parts, and bedding of animals that were know to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals, or testing of pharmaceuticals.
(6) Isolation Waste.	Biological waste and discarded materials contaminated with blood, excretion, exudates, or secretions from humans who are isolated to protect others from certain highly communicable disease, or isolated animals known to be infected with highly communicable diseases.
(7) Unused Sharps.	The following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

Note: The term "solid waste" includes solid, semi-solid, or liquid materials, but does not include domestic sewage materials identified in the requirements of the Environmental Protection Agency contained in 40 CFR 261.4.

2. *Exceptions*

(a) The following wastes are excepted from the requirements for regulated medical waste:

(i) Hazardous waste identified or listed under the regulations in 40 CFR part 261;

(ii) Household waste, as defined in 40 CFR 261.4(b)(1);

(iii) Ash from incineration of regulated medical waste once the incineration process has been completed;

(iv) Residues from treatment and destruction processes of regulated medical waste once the waste has been both treated and destroyed; or

(v) Human corpses, remains, and anatomical parts that are intended for interment or cremation.

(b) Samples of regulated medical waste transported off-site by EPA or State-designated enforcement personnel for enforcement purposes are excepted from the requirements of this subchapter during the enforcement proceeding.

(c) Until October 1, 1992, cultures of etiologic agents of 50 milliliters (1.666 fluid ounces) or less total quantity in one outside package are not subject to any requirements of this subchapter if the items as packaged do not contain any material otherwise subject to the requirements of parts 171 through 180 of this subchapter.

PART 174—CARRIAGE BY RAIL

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

Authority: 49 App. U.S.C. 1803, 1804, 1808; 49 CFR part 1.

§ 174.25 [Amended]

192. In § 174.25, the following changes are made:

a. In paragraph (a)(2), the table is amended by adding the entry "Division 6.1 PG III" immediately above the entry for "Class 7" in Column 1; adding "Placarded KEEP AWAY FROM FOOD" immediately above the entry "Placarded RADIOACTIVE" in Column 2; and adding "(None)" immediately above the entry "Radioactive material" in Column 3. For the entry "Class 9", in Column 2 "(None)" is revised to read "Placarded CLASS 9". In the last entry, in Column 1, the wording "a residue of a combustible liquid" is revised to read "a residue of a combustible liquid, a residue of a Division 6.1 PG III material, or a residue of a Class 9 material"; and in Column 3, "(None." is revised to read "(None).".

b. In paragraph (b)(1)(i), the wording "or § 172.102 (when authorized)" is removed.

c. In paragraph (c), "Naptha" is revised to read "Naphtha".

§ 174.67 [Amended]

193. In § 174.67, in paragraph (a)(3), the word "high" is added immediately after "(3.9 inches)" and after "(2 inches)".

194. In § 174.81, the Segregation Table in paragraph (d) and paragraph (e)(5) are revised to read as follows:

§ 174.81 Segregation of hazardous materials.

* * * * *

(d) * * *

SEGREGATION TABLE FOR HAZARDOUS MATERIALS

Class or Division		Notes	1.1, 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 gas Zone A	2.3 gas other than Zone A	3	4.1	4.2	4.3	5.1	5.2	6.1 liquids PG I Zone A	7	8 liquids only
Explosives	1.1 and 1.2	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.3		*	*	*	*	*	X		X	X	X		X	X	X	X	X		X

SEGREGATION TABLE FOR HAZARDOUS MATERIALS—Continued

Class or Division		Notes	1.1, 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 gas Zone A	2.3 gas other than Zone A	3	4.1	4.2	4.3	5.1	5.2	6.1 liquids PG I Zone A	7	8 liquids only
Explosives	1.4		•	•	•	•	•	O		O	O	O		O				O		O
Very insensitive explosives.	1.5		•	•	•	•	•	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely insensitive explosives.	1.6		•	•	•	•	•													
Flammable gases	2.1		X	X	O	X				X	O							O	O	O
Non-toxic, non-flammable gases.	2.2		X			X														
Poisonous gas Zone A.	2.3		X	X	O	X		X				X	X	X	X	X	X			X
Poisonous gas other than Zone A.	2.3		X	X	O	X		O				O	O	O	O	O	O			O
Flammable liquids	3		X	X	O	X				X	O					O		X		
Flammable solids	4.1		X			X				X	O							X		O
Spontaneously combustible materials.	4.2		X	X	O	X				X	O							X		X
Dangerous when wet materials.	4.3		X	X		X				X	O							X		O
Oxidizers	5.1	A	X	X		X				X	O							X		O
Organic peroxides	5.2		X	X		X				X	O							X		O
Poisonous liquids PG I Zone A.	6.1		X	X	O	X		O				X	X	X	X	X	X			X
Radioactive materials.	7		X			X		O												
Corrosive liquids	8		X	X	O	X		O		X	O		O	X	O	O	O	X		

* * * * *

(e) * * *

(5) The note "A" in the second column of the Table means that, notwithstanding the requirements of the letter "X", ammonium nitrate fertilizer may be loaded or stored with Division 1.1 (Class A explosive) materials.

* * * * *

§ 174.81 [Amended]

195. In addition, in § 174.81, the following changes are made:

a. In paragraph (b), the reference "§ 171.12" is revised to read "§ 176.83(b)".

b. In paragraph (e)(3), the wording "unless separated by a distance of 1.2 m (4 feet) in all directions, or separated" is revised to read "unless separated by a distance of 1.2 m (4 feet) in all directions and packages maintained, such as on pallets, at a minimum height of 10 cm off the floor of the transport vehicle, or separated".

c. In paragraph (h), in the first sentence, the wording "were of the lower division." is revised to read "were of the lower numerical division (i.e., Division 1.1 being lower than Division 1.2).".

§ 174.82 [Amended]

196. In § 174.82, in paragraph (a), "Class 6" is revised to read "Division 6.1".

§ 174.83 [Amended]

197. In § 174.83, in paragraph (b)(2), "PG I," immediately following "Division 2.3 (" is removed.

§ 174.84 [Amended]

198. In § 174.84, "PG I," immediately following "Division 2.3 (" is removed.

§ 174.200 [Amended]

199. In § 174.200, in paragraph (c)(4), "(129°F)" is revised to read "(129°F)".

PART 175—CARRIAGE BY AIRCRAFT

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

Authority: 49 App. U.S.C. 1803, 1804, 1807, 1808; 49 CFR part 1.

§ 175.10 [Amended]

201. In § 175.10, the following changes are made:

a. In paragraph (a)(4)(ii), "47 ml" is revised to read "470 ml".

b. In paragraphs (a)(2) and (a)(15), the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

§ 175.320 [Amended]

202. In § 175.320, in paragraph (b)(9), "(49 feet)" is revised to read "(50 feet)".

§ 175.701 [Amended]

203. In § 175.701, in paragraph (c) introductory text, the wording "Director, OHMT" is removed and replaced with "Associate Administrator for Hazardous Materials Safety" each place it appears.

PART 176—CARRIAGE BY VESSEL

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

Authority: 49 App. U.S.C. 1803, 1804, 1805, 1808; 49 CFR 1.53, app. A to part 1.

§ 176.5 [Amended]

205. In § 176.5, in paragraph (a), the wording "paragraphs (b) and (e) of this section" is revised to read "paragraph (b) of this section".

§ 176.11 [Amended]

206. In § 176.11, in paragraph (a), in the first sentence, the reference "§ 171.12(b)" is removed and replaced with "§ 171.12", and the second sentence is revised to read "The requirements of §§ 176.83, 176.84, and 176.112 through 176.174 are not applicable to shipments of Class 1 (explosive) materials made in accordance with the IMDG Code."

§ 176.30 [Amended]

207. In § 176.30, in paragraph (a)(5)(i), "§ 172.101 of this subchapter; or" is revised to read "the § 172.101 Table; or".

§ 176.69 [Amended]

208. In § 176.69, in paragraph (a), the wording "Class 9 (miscellaneous hazardous materials) materials)" is revised to read "Class 9 (miscellaneous hazardous) materials)".

§ 176.74 [Amended]

209. In § 176.74, in paragraph (c), the wording "(miscellaneous hazardous materials) materials" is revised to read "(miscellaneous hazardous) materials".

§ 176.76 [Amended]

210. In § 176.76, in paragraph (a)(2), the second sentence is amended by revising "Restraint" to read "restraint" and by adding the word "Vertical" at the beginning of the sentence.

§ 176.83 [Amended]

211. In § 176.83, the following changes are made:

a. In paragraphs (a)(7) (i) and (ii), "all" is revised to read "All" both places it appears.

b. In paragraph (f), in Table 176.83(f), under the heading "Open versus open, On deck" the third entry "One container spaces" is revised to read "One container space".

c. In paragraph (g)(2), "for trailerships" is revised to read "For trailerships".

d. In paragraph (g), in Table 176.83(g), under the heading "Closed versus open, Under deck", the fourth entry "At least 6 meters" is revised to read "At least 6 meters or one bulkhead" and, under the heading "Open versus open, On deck", the third entry "At least 6 meters or one bulkhead" is revised to read "At least 6 meters".

212. In § 176.84, the section heading is revised; and in paragraph (b), in the table, provision "115" is revised to read as follows:

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

* * * * *

(b) *Table of provisions:*

Code	Provisions
* * * * *	
115	If packaged in glass or earthenware inner packagings in wooden or fiberboard outer packagings, the maximum quantity on any vessel is 500 kg (equivalent to 450 liters).
* * * * *	

§ 176.84 [Amended]

213. In addition, in § 176.84, the following changes are made:

a. In paragraph (c)(2), in the Table, in Note 20E, the reference "§ 172.84(c)(5)" is revised to read "§ 176.84(c)(3)".

b. In paragraph (c)(3)(ii)(A), the wording "steel portable magazines or steel portable magazines" is revised to read "steel portable magazines or steel freight containers".

§ 176.99 [Amended]

214. In § 176.99, the wording "(Class A explosive)" is revised to read "(Class A and B explosives)".

§ 176.132 [Amended]

215. In § 176.132, in paragraph (a)(2), the word "battening" is revised to read "Battening".

§ 176.136 [Amended]

216. In § 176.136, in paragraph (c), in the first sentence, "UN" is added immediately before each number, beginning with "0015".

§ 176.146 [Amended]

217. In § 176.146, in paragraphs (d)(1) and (d)(2), the word "an" is revised to read "An" both places it appears.

§ 176.156 [Amended]

218. In § 176.156, in paragraph (d), the reference "§172.602" is revised to read "§ 172.602".

§ 176.170 [Amended]

219. In § 176.170, the following changes are made:

a. In paragraph (a), the wording "regarded a magazine" is revised to read "regarded as a magazine".

b. In paragraph (c), the wording ", and a non-metallic lining." is added before the period at the end of the sentence.

c. In paragraph (e), a comma is added after the wording "On vessels".

§ 176.205 [Amended]

220. In § 176.205, in paragraph (b)(7), the third sentence is revised to read "It must consist of two layers of corrosion-resistant metal wire of 20 x 20 mesh or finer, spaced not less than 1 cm (0.4 inch) or more than 4 cm (1.6 inches) apart."

§ 176.305 [Amended]

221. In § 176.305, in paragraph (d)(2), the third sentence is revised to read "It must consist of two layers of corrosion-resistant metal wire of 20 x 20 mesh or finer, spaced not less than 1 cm (0.4 inch) or more than 4 cm (1.6 inches) apart."

§ 176.315 [Amended]

222. In § 176.315, in paragraph (a), the wording "79,800 liters (21,081 U.S. gallons)" is revised to read "79,500 liters (21,000 U.S. gallons)".

§ 176.410 [Amended]

223. In § 176.410, in paragraph (b), the wording "(miscellaneous hazardous materials)" is removed.

224. In § 176.415, paragraphs (c)(1), (c)(2), and (c)(5) are revised to read as follows:

§ 176.415 Permit requirements for Division 1.5 (blasting agents), ammonium nitrates, and certain ammonium nitrate fertilizers.

* * * * *

(c) * * *

(1) If the material is ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN2070; or Explosives, blasting, type E, Division 1.5 (blasting agents) compatibility group D, UN0332 in combustible packaging or in a rigid packaging with combustible inside packaging, it must be loaded or unloaded at a facility remote from populous areas or high value or high hazard industrial facilities so that in the event of fire or explosion loss of lives and property may be minimized;

(2) If the material is an ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN2070, containing more than 60 percent ammonium nitrate; or ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN2070 in rigid packagings with combustible inside packagings, it must be loaded or unloaded at a facility removed from congested areas or high value or high hazard industrial facilities;

* * * * *

(5) If the material is ammonium nitrate fertilizer, Division 5.1 (oxidizer), UN2070; an ammonium nitrate fertilizer, Division 5.1 (oxidizer) containing more than 60 percent ammonium nitrate; or a Division 1.5 (blasting agents) compatibility group D material in non-rigid combustible packaging and loaded in freight containers or transport vehicles, it may be loaded or unloaded at a non-isolated facility provided that facility is approved by the COTP.

§ 176.415 [Amended]

225. In addition, in § 176.415, the following changes are made:

a. In paragraphs (a)(1), (b)(1) and (b)(5), the word "container" is revised to read "packaging".

b. In paragraph (a)(2), the wording "(miscellaneous hazardous materials) material" is removed.

c. In paragraph (b)(6), the wording "(miscellaneous hazardous materials)" is removed.

d. In paragraph (c)(3), at the end of the sentence, the word "and" is removed; and in paragraph (c)(4), at the end of the last sentence, the period is removed and replaced with "; and".

§ 176.704 [Amended]

226. In § 176.704, in paragraph (f), the wording "Office of Hazardous Materials Transportation (OHMT)" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

227. In § 176.905, paragraph (k) is revised to read as follows:

§ 176.905 Motor vehicles or mechanical equipment powered by internal combustion engines.

* * * * *

(k) When motor vehicles with fuel in their tanks are stowed in a closed freight container, their battery cables must be disconnected and secured away from the battery terminals and the following warning must be affixed to the access doors: "WARNING—MAY CONTAIN EXPLOSIVE MIXTURES WITH AIR—KEEP IGNITION SOURCES AWAY WHEN OPENING." The warning must be on a contrasting background and must be readily legible from a distance of 8 meters (26 feet).

PART 177—CARRIAGE BY PUBLIC HIGHWAY

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

Authority: 49 App. U.S.C. 1803, 1804, 1805, 49 CFR part 1.

§ 177.825 [Amended]

229. In § 177.825, in paragraph (f) introductory text, the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

§ 177.844 [Amended]

230. In § 177.844, in the section heading, the section number "§ 117.844" is revised to read "§ 177.844".

231. In § 177.848, the Segregation Table in paragraph (d) and paragraph (e)(5) are revised to read as follows:

§ 177.848 Segregation of hazardous materials.

* * * * *

(d) * * *

SEGREGATION TABLE FOR HAZARDOUS MATERIALS

Class or division		Notes	1.1 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 gas zone A	2.3 gas other than zone A	3	4.1	4.2	4.3	5.1	5.2	6.1 liquids PG I zone A	7	8 liquids only
Explosives	1.1 and 1.2	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.3		*	*	*	*	*	X		X	X	X		X	X	X	X	X		X
Explosives	1.4		*	*	*	*	*	O		O	O	O		O				O		O
Very insensitive explosives.	1.5		*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely insensitive explosives.	1.6		*	*	*	*	*													
Flammable gases	2.1		X	X	O	X				X	O							O	O	O
Non-toxic, non-flammable gases.	2.2		X			X														
Poisonous gas Zone A.	2.3		X	X	O	X		X				X	X	X	X	X	X			X
Poisonous gas other than Zone A.	2.3		X	X	O	X		O				O	O	O	O	O	O			O
Flammable liquids	3		X	X	O	X				X	O					O		X		
Flammable solids	4.1		X			X				X	O							X		O
Spontaneously combustible materials.	4.2		X	X	O	X				X	O							X		X
Dangerous when wet materials.	4.3		X	X		X				X	O							X		O
Oxidizers	5.1	A	X	X		X				X	O							X		O
Organic peroxides	5.2		X	X		X				X	O							X		O
Poisonous liquids PG I Zone A.	6.1		X	X	O	X		O				X	X	X	X	X	X			X
Radioactive materials.	7		X			X		O												
Corrosive liquids	8		X	X	O	X		O		X	O		O	X	O	O	O	X		

* * * * *

(e) * * *

(5) The note "A" in the second column of the Table means that, notwithstanding the requirements of the letter "X", ammonium nitrate fertilizer may be loaded or stored with Division 1.1 (Class A explosive) materials.

* * * * *

§ 177.848 [Amended]

232. In addition, in § 177.848, the following changes are made:

a. In paragraph (b), the reference "§ 171.12" is revised to read "§ 176.83(b)".

b. In paragraph (e)(3), the wording "unless separated by a distance of 1.2 m (4 feet) in all directions, or separated" is revised to read "unless separated by a distance of 1.2 m (4 feet) in all directions and packages maintained, such as on pallets, at a minimum height of 10 cm off the floor of the transport vehicle, or separated".

c. In paragraph (h), in the first sentence, the wording "were of the lower division." is revised to read "were of the lower numerical division (i.e., Division 1.1 being lower than Division 1.2).".

§ 177.870 [Amended]

233. In § 177.870, in paragraph (e), "(99.2 pounds)" is revised to read "(99 pounds)".

§§ 177.821, 177.825, 177.826, 177.838 [Amended]

234. In addition to the amendments set forth above, part 177 is amended by removing the phrase "Director, OHMT" and, inserting in its place, the phrase "Associate Administrator for Hazardous Materials Safety" each place it appears in the following sections:

(a) Section 177.821(f)
(b) Section 177.825(b)(1)(iii)(A)
(c) Section 177.825(b)(1)(iii)(B)
(d) Section 177.826(a)
(e) Section 177.838(g)

PART 178—SPECIFICATIONS FOR PACKAGINGS

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

Authority: 49 App. U.S.C. 1803, 1804, 1805, 1806, 1808; 49 CFR part 1, unless otherwise noted.

236. In § 178.2, the section heading, paragraph (b), and the introductory text of paragraph (c) are revised to read as follows:

§ 178.2 Applicability and responsibility.

* * * * *

(b) *Specification markings.* When this part requires that a packaging be marked with a DOT specification or UN standard marking, marking of the packaging with the appropriate DOT or UN markings is the certification that—

(1) Except as otherwise provided in this section, all requirements of the DOT specification or UN standard, including performance tests, are met; and

(2) All functions performed by, or on behalf of, the person whose name or symbol appears as part of the marking conform to requirements specified in this part.

(c) *Notification.* Except as specifically provided in §§ 178.337–18 and 178.345–10 of this part, the manufacturer or other person certifying compliance with the requirements of this part, and each subsequent distributor of that packaging shall—

* * * * *

§ 178.2 [Amended]

237. In addition, in § 178.2, in paragraph (c)(1)(ii), the wording "any closures needed" is revised to read "any closures, including gaskets, needed".

238. In § 178.3, a new paragraph (c) is added to read as follows:

§ 178.3 Marking of packagings.

* * * * *

(c) Where a packaging conforms to more than one UN standard or DOT specification, the packaging may bear more than one marking, provided the packaging meets all the requirements of each standard or specification. Where more than one marking appears on a packaging, each marking must appear in its entirety.

§ 178.33a [Amended]

239. In § 178.33a, in the section heading, "Specification 2O" is revised to read "Specification 2Q".

Subpart B [Amended]

240. Subpart B of part 178 is amended by redesignating § 178.34–4 as § 178.360–4 and transferring it to subpart K.

§ 178.45–17 [Amended]

241. In § 178.45–17, in paragraph (e), the wording "Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

§ 178.65–14 [Amended]

242. In § 178.65–14, in paragraph (d), the wording "Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

§ 178.270–2 [Amended]

243. In § 178.270–2, in paragraph (b), the wording "and the IM tank table" is removed.

§ 178.270–5 [Amended]

244. In § 178.270–5, in paragraph (d), the wording "in the IM Tank Table," is revised to read "in this subchapter,".

245. In § 178.503, paragraph (a)(9) is removed; paragraph (a)(10) is redesignated as (a)(9); paragraph (a) introductory text and paragraph (a)(7) are revised; and a new paragraph (a)(10) is added to read as follows:

§ 178.503 Marking of packagings.

(a) The manufacturer shall mark every packaging that is required to conform to a UN standard of this subpart in a durable and clearly visible manner. Every reusable packaging liable to undergo a reconditioning process which might obliterate the packaging marks must bear the marks specified in § 178.503 (a)(1) through (a)(6) and (a)(9) in a permanent form (e.g., embossed) able to withstand the reconditioning process. A marking may be applied in a single line or in multiple lines provided the correct sequence is respected. As illustrated by the examples in paragraph (d) of this section, slash marks should be used to present the following information in the sequence presented:

* * * * *

(7) The state authorizing allocation of the mark. The letters 'USA' indicate that the packaging is manufactured and marked in the United States in compliance with the provisions of this subchapter;

* * * * *

(10) Rated capacity of the packaging expressed in liters may be marked.

* * * * *

§ 178.503 [Amended]

246. In addition, in § 178.503, the following changes are made:

a. In paragraph (a)(1), the wording "for metal receptacles" is revised to read "for embossed metal receptacles".

b. In paragraph (a)(2), a new sentence is added after the first sentence to read "The letter "V" must follow the packaging identification code on packagings tested in accordance with § 178.601(g)(2); for example, "4GV".".

c. In paragraph (a)(5)(i), the word "off" is revised to read "down".

d. In paragraph (a)(8), the wording "with the UN standard" is revised to read "with subpart L and subpart M of this part".

e. In newly designated paragraph (a)(9), the wording "or reconditioning" is added immediately after "reuse" and before "as"; and a sentence is added at the end of the paragraph to read: "Where a drum is constructed with different head and body thicknesses, the different thicknesses may be marked (e.g., "1.2–1.0" for drums having different head and body thicknesses, and "0.8–1.0–1.2" for drums having different top head, body and bottom head thicknesses, respectively); and".

f. In paragraph (b), the word "only" is added immediately after "applied" and before "to the removable head".

§ 178.504 [Amended]

247. In § 178.504, the following changes are made:

a. In paragraph (b)(4), in the first sentence, the wording "must have at least either two" is revised to read "may have at least two".

b. In paragraph (b)(5), in the fourth sentence, the wording "Closure flanges must be mechanically seamed" is revised to read "Closure flanges may be mechanically seamed".

§ 178.505 [Amended]

248. In § 178.505, the following changes are made:

a. In paragraph (b)(3), in the first sentence, the wording "must have at least either two" is revised to read "may have at least two".

b. In paragraph (b)(4), in the fourth sentence, the wording "Closure flanges must be welded in place" is revised to read "Closure flanges may be welded in place".

§ 178.506 [Amended]

249. In § 178.506, the following changes are made:

a. In paragraph (b)(3), in the first sentence, the wording "must have at least either two" is revised to read "may have at least two".

b. In paragraph (b)(4), in the fourth sentence, the wording "Closure flanges must be welded in place" is revised to read "Closure flanges may be welded in place".

§ 178.520 [Amended]

250. In § 178.520, in paragraph (b)(3), the wording "or metalized film or foil" is added before the period and immediately after "plastic material".

§ 178.521 [Amended]

251. In § 178.521, in paragraph (b)(2), in the third sentence, the word "also" is added immediately after "must" and before "be placed".

252. In § 178.601, paragraph (g)(2)(vii) is removed; paragraph (g)(2)(viii) is redesignated as (g)(2)(vii); paragraph (g)(3) is redesignated as (g)(7); newly designated paragraph (g)(2)(vii) is revised; and paragraphs (c)(4)(v) and (g)(3) through (g)(6) are added to read as follows:

§ 178.601 General requirements.

* * * * * *

(c) * * *

(4) * * *

(v) Packagings which differ from the design type only in their lesser design height.

* * * * * *

(g) * * *

(2) * * *

(vii) Packagings must be marked in accordance with § 178.503 of this part as having been tested to Packing Group I performance for combination packagings. The marked maximum gross mass may not exceed the sum of the mass of the outer packaging plus one half the mass of the filled inner packagings of the tested combination packaging. In addition, the marking required by § 178.503(a)(2) of this part must include the letter "V".

(3) *Variation 3.* Packagings other than combination packagings which are produced with reductions in external dimensions (i.e., length, width or diameter) of up to 25 percent of the dimensions of a tested packaging may be used without further testing provided an equivalent level of performance is maintained. The packagings must, in all other respects (including wall thicknesses), be identical to the tested design-type. The marked gross mass (when required) must be reduced in proportion to the reduction in volume.

(4) *Variation 4.* Variations are permitted in outer packagings of a tested design-type combination packaging, without further testing, provided an equivalent level of performance is maintained, as follows:

(i) Each external dimension (length, width and height) is less than or equal to the corresponding dimension of the tested design-type;

(ii) The structural design of the tested outer packaging (i.e. methods of construction, materials of construction, strength characteristics of materials of construction, method of closure and material thicknesses) is maintained;

(iii) The inner packagings are identical to the inner packagings used in the tested design type except that their size and mass may be less; and they are oriented within the outer packaging in the same manner as in the tested packaging;

(iv) The same type or design of absorbent materials, cushioning materials and any other components necessary to contain and protect inner packagings, as used in the tested design type, are maintained. The thickness of cushioning material between inner packagings and between inner packagings and the outside of the packaging may not be less than the thicknesses in the tested design type packaging; and

(v) Sufficient additional cushioning material is used to take up void spaces and to prevent significant movement of the inner packagings.

An outer packaging qualifying for use in transport in accordance with all of the above conditions may also be used without testing to transport inner packagings substituted for the originally tested inner packagings in accordance with the conditions set out in Variation 1 in paragraph (g)(1) of this section.

(5) *Variation 5.* Single packagings (i.e., non-bulk packagings other than combination packagings), that differ from a tested design type only to the extent that the closure device or gasketing differs from that used in the originally tested design type, may be used without further testing, provided an equivalent level of performance is maintained, subject to the following conditions (the qualifying tests):

(i) A packaging with the replacement closure devices or gasketing must successfully pass the drop test specified in § 178.602 in the orientation which most severely tests the integrity of the closure or gasket;

(ii) When intended to contain liquids, a packaging with the replacement closure devices or gasketing must successfully pass the leakproofness test specified in § 178.603, the hydrostatic pressure test specified in § 178.605, and the stacking test specified in § 178.606.

Replacement closures and gasketings qualified under the above test requirements are authorized without additional testing for packagings described in paragraph (g)(3) of this section. Replacement closures and gasketings qualified under the above test requirements also are authorized without additional testing for different tested design types packagings of the same type as the originally tested packaging, provided the original design type tests are more severe or comparable to tests which would otherwise be conducted on the packaging with the replacement closures or gasketings. (For example: The packaging used in the qualifying tests has a lesser packaging wall thickness than the packaging with replacement closure devices or gasketing; the gross mass of the packaging used in the qualifying drop test equals or exceeds the mass for which the packaging with replacement closure devices or gasketing was tested; the packaging used in the qualifying drop test was dropped from the same or greater height than the height from which the packaging with replacement closure devices or gasketing was dropped in design type tests; and the specific gravity of the substance used in the qualifying drop test was the same or greater than the specific gravity of the liquid used in the design type tests of the packaging with replacement closure devices or gasketing.)

(6) The provisions in Variations 1, 2, and 4 in paragraphs (g)(1), (2) and (4) of this section for combination packagings may be applied to packagings containing articles, where the provisions for inner packagings are applied analogously to the articles. In this case, inner packagings need not comply with § 173.27(c)(1) and (c)(2) of this subchapter.

* * * * *

§ 178.601 [Amended]

253. In addition, in § 178.601, the following changes are made:

a. In paragraph (c)(4)(iii), the word "or" is removed; and in paragraph (c)(4)(iv), the period at the end of the sentence is removed and replaced with "; or".

b. In paragraph (e), a new sentence is added after the first sentence to read "Changes in retest frequency are subject to the approval of the Associate Administrator for Hazardous Materials Safety.".

c. In paragraph (g) introductory text, a second sentence is added at the end to read "For air transport, packagings must comply with § 173.27(c)(1) and (c)(2) of this subchapter.".

d. In paragraph (g)(2)(vi), the word "and" is added at the end of the paragraph.

e. In paragraph (h), the wording "or test intervals," is added immediately after "methods," and before "other than".

f. In paragraph (k) introductory text, the word "manufacturer" is removed and replaced with the wording "person who certifies the tested design type".

254. In § 178.602, paragraph (a) is revised to read as follows:

§ 178.602 Preparation of packagings and packages for testing.

(a) Except as otherwise provided in this subchapter, each packaging and package must be closed in preparation for testing and tests must be carried out in the same manner as if prepared for transportation, including inner packagings in the case of combination packagings.

* * * * *

§ 178.602 [Amended]

255. In § 178.602, the following changes are made:

a. In paragraph (b), the first sentence is revised to read "For the drop and stacking test, inner and single-unit receptacles must be filled to not less than 95 percent of maximum capacity (see § 171.8 of this subchapter) in the case of solids and not less than 98 percent of maximum capacity in the case of liquids.".

b. In paragraph (d)(1), the wording "; or" is removed at the end of the paragraph and replaced with a period; and a new sentence is added to read "Average values should fall within these limits. Short-term fluctuations and measurement limitations may cause individual measurements to vary by up to ± 5 percent relative humidity without significant impairment of test reproducibility;".

c. In paragraph (d)(2), the wording "; or" is removed at the end of the paragraph and replaced with a period; and a new sentence is added to read "Average values should fall within these limits. Short-term fluctuations and measurement limitations may cause individual measurements to vary by up to ± 5 percent relative humidity without significant impairment of test reproducibility; or".

d. In paragraph (e), in the first sentence, the wording "Except as otherwise provided," is added immediately before the wording "Each packaging", and the word "Each" is revised to read "each".

256. In § 178.603, a heading is added to paragraph (a); and paragraphs (a) introductory text and (f)(6) are revised to read as follows:

§ 178.603 Drop test.

(a) *General.* The drop test must be conducted for the qualification of all packaging design types and performed periodically as specified in § 178.601(e). The number of drops required and the packages' orientations are as follows:

* * * * *

(f) * * *

(6) No rupture is permitted in packagings for materials in Class 1 which would permit spillage of loose explosive substances or articles from the outer packaging.

§ 178.603 [Amended]

257. In § 178.603, the following changes are made:

a. In paragraph (b), a sentence is added at the end of the paragraph to read "Exceptions for the number of steel and aluminum packaging samples used for conducting the drop test are subject to the approval of the Associate Administrator for Hazardous Materials Safety.".

b. In paragraph (c), in the first sentence, "−18° C (0° F)" is revised to read "−18° C (0° F)" and a sentence is added at the end of the paragraph to read "Test samples prepared in this way are not required to be conditioned in accordance with § 178.602(d).".

c. In paragraphs (e)(1)(iii) and (e)(2)(i)(C), "0.6 m (3 feet)" is revised to read "0.6 m (2.6 feet)".

d. In paragraph (e)(2)(ii)(B), "1.0 m (3 feet)" is revised to read "1.0 m (3.3 feet)".

§ 178.604 [Amended]

258. In § 178.604, the following changes are made:

a. In paragraph (b)(2), a sentence is added at the end of the paragraph to read "Exceptions for the number of samples used in conducting the leakproofness test are subject to the approval of the Associate Administrator for Hazardous Materials Safety.".

b. In paragraph (c)(1), a sentence is added at the end of the paragraph to read "Removable heads need not be installed during production testing.".

c. In paragraph (d), in the last sentence, the wording ", or if approved by the Associate Administrator for Hazardous Materials Safety" is removed.

259. In § 178.605, in paragraph (a), the paragraph heading and the first sentence are revised to read as follows:

§ 178.605 Hydrostatic pressure test.

(a) *General.* The hydrostatic pressure test must be conducted for the qualification of all metal, plastic, and composite packaging design types intended to contain liquids and be performed periodically as specified in § 178.601(e). * * *

* * * * *

§ 178.605 [Amended]

260. In addition, in § 178.605, in paragraph (b), a sentence is added at the end of the paragraph to read "Exceptions for the number of aluminum and steel sample packagings used in conducting the hydrostatic pressure test are subject to the approval of the Associate Administrator of Hazardous Materials Safety.".

§ 178.606 [Amended]

261. In § 178.606, the following changes are made:

a. In paragraph (a), "packages" is revised to read "packaging design types".

b. In paragraph (b), two sentences are added at the end of the paragraph to read "Exceptions for the number of aluminum and steel sample packagings used in conducting the stacking test are subject to the approval of the Associate Administrator of Hazardous Materials Safety. Notwithstanding the provisions of § 178.602(a) of this subpart, combination packagings may be subjected to the stacking test without their inner packagings, except where this would invalidate the results of the test."

c. In paragraph (c)(2)(ii), in the second sentence, the word "drum" is revised to read "packaging", and the first line of the formula is revised to read as follows:

"Liquids: $A=(n-1)\,[w+(s \times v \times 8.3 \times .98)] \times 1.5$; Solids: $A=(n-1)\,[w+(s \times v \times 8.3 \times .95)] \times 1.5$".

d. In paragraph (d), in the third sentence, the wording "strength or cause instability in stacks of packages." is revised to read "strength, cause instability in stacks of packages, or cause damage to inner packagings likely to reduce safety in transportation.".

§ 178.608 [Amended]

262. In § 178.608, the following changes are made:

a. In paragraph (b)(2), the wording "or rotary" is added immediately after "vertical" and before "double-amplitude".

b. In paragraph (c), a sentence is added at the end of the paragraph to read "No test sample should show any deterioration which could adversely

affect transportation safety or any distortion liable to reduce packaging strength."

263. In addition to the amendments set forth above, Part 178 is amended by removing the phrase "Director, OHMT" and, inserting in its place, the phrase "Associate Administrator for Hazardous Materials Safety" in the following sections:

(a) Section 178.33–9(a)(2)
(b) Section 178.33a–9(a)(2)
(c) Section 178.36–3
(d) Section 178.36–20(a)(3)
(e) Section 178.37–3
(f) Section 178.37–20(a)(3)
(g) Section 178.38–3
(h) Section 178.38–20(a)(2)
(i) Section 178.39–3
(j) Section 178.39–19(a)(2)
(k) Section 178.42–3
(l) Section 178.42–14(a)(2)
(m) Section 178.44–3
(n) Section 178.44–23(a)(2)
(o) Section 178.45–3
(p) Section 178.46–3
(q) Section 178.46–15(a)(2)
(r) Section 178.47–3
(s) Section 178.47–21(a)(2)
(t) Section 178.50–3
(u) Section 178.50–19(a)(2)
(v) Section 178.51–3
(w) Section 178.51–19(a)(2)
(x) Section 178.53–3
(y) Section 178.53–18(a)(2)
(z) Section 178.55–3
(aa) Section 178.55–20(a)(2)
(bb) Section 178.56–3
(cc) Section 178.56–19(a)(2)
(dd) Section 178.57–3
(ee) Section 178.57–20(a)(3)
(ff) Section 178.58–3
(gg) Section 178.58–21(a)(2)
(hh) Section 178.59–3(a)
(ii) Section 178.59–18(a)(2)
(jj) Section 178.60–3(a)
(kk) Section 178.60–22(a)(2)
(ll) Section 178.61–3
(mm) Section 178.61–20(a)(2)
(nn) Section 178.65–3(a)
(oo) Section 178.65–3(b)
(pp) Section 178.65–3(c)
(qq) Section 178.68–3
(rr) Section 178.68–19(a)(2)
(ss) Section 178.270–2(c)
(tt) Section 178.352–6(a)(3)
(uu) Section 178.358–5(b)(5)
(vv) Section 178.362–6(b)

264. In appendix B to part 178, the following changes are made:

a. In the introductory text, the wording "for other than the original design qualification tests" is removed.

b. In paragraph (1), in the second sentence, "0 kPa" is revised to read "5 kPa", "100 kPa" is revised to read "95 kPa", and the word "drum" is revised to read "packaging".

c. In paragraph (1), in the fourth sentence, the wording ", but not less than 30 seconds" is removed.

d. In paragraph (1), in the last sentence, the wording "from the packaging during 30 seconds of testing" is removed.

e. In paragraph (2), the last sentence is revised to read, "A packaging passes the pressure differential test if there is no change in measured internal pressure.".

f. A new paragraph (4) is added to read as follows:

Appendix B to Part 178—Alternative Leakproofness Test Methods

* * * * *

(4) *Solution over partial seams test.* For drums, the following test may be used: The packaging must be restrained while an internal air pressure of 48 kPa (7.0 psig) is applied; the method of restraint may not affect the results of the test. The packaging must be coated with a soap solution over the entire side seam and a distance of not less than eight inches on each side of the side seam along the chime seam(s). The test must be conducted for a period of time sufficient to pressurize the interior of the packaging to the specified air pressure and to determine if there is leakage of air from the packaging. A packaging passes the test if there is no leakage of air from the packaging. Chime cuts must be made on the initial drum at the beginning of each production run and on the initial drum after any adjustment to the chime seamer. Chime cuts must be maintained on file in date order for not less than six months and be made available to a representative of the Department of Transportation on request.

PART 179—SPECIFICATIONS FOR TANK CARS

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

Authority: 49 App. U.S.C. 1803, 1804, 1805, 1806, 1808; 49 CFR part 1, unless otherwise noted.

§ 179.101–1 [Amended]

266. In § 179.101–1, in the table in paragraph (a), the following changes are made:

a. In the "Insulation" requirement entry for 112A200W, 112A340W, 112A400W, 112A500W, 114A340W, and 114A400W, the wording "[4.13] Optional" is revised to read "[4] optional".

b. In Footnote 4, the wording "tank manway nozzle" is revised to read "tank, manway nozzle".

§ 179.105–7 [Amended]

267. In § 179.105–7, in the paragraph (c) introductory text, the following changes are made:

a. The wording "a tank car tank" is revised to read "an insulated tank car tank".

b. The wording "Division 2.3 (poisonous gas) material" is revised to read "material poisonous by inhalation (see § 171.8 of this subchapter)".

c. The reference "A8.01" is revised to read "A8.00".

PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS

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

Authority: 49 App. U.S.C. 1803; 49 CFR Part 1.

§ 180.409 [Amended]

269. In § 180.409, in paragraph (b)(2), the wording "Director, Office of Hazardous Materials Transportation" is removed and replaced with "Associate Administrator for Hazardous Materials Safety".

§ 180.415 [Amended]

270. In § 180.415, in the last sentence in paragraph (b), the wording "10–85" is revised to read "10–95" and the year "1985" is revised to read "1995".

Issued in Washington, DC on November 19, 1991, under authority delegated in 49 CFR part 1.

Travis P. Dungan,

Administrator, Research and Special Programs Administration.

[FR Doc. 91–28240 Filed 12–19–91; 8:45 am]

BILLING CODE 4910–60–M