Title 49 —Transportation
Subtitle B —Other Regulations Relating to Transportation
Chapter I —Pipeline and Hazardous Materials Safety Administration, Department of Transportation
Subchapter C —Hazardous Materials Regulations

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

Authority: 49 U.S.C. 5101-5128, 44701; Pub. L. 101-410 section 4; Pub. L. 104-134, section 31001; Pub. L. 114-74 section 701 (28 U.S.C. 2461 note); 49 CFR 1.81 and 1.97.

Editorial Note: Nomenclature changes to part 171 appear at 70 FR 56090, Sept. 23, 2005.

Subpart A—Applicability, General Requirements, and North American Shipments

§ 171.1 Applicability of Hazardous Materials Regulations (HMR) to persons and functions.

Federal hazardous materials transportation law (49 U.S.C. 5101 *et seq.*) directs the Secretary of Transportation to establish regulations for the safe and secure transportation of hazardous materials in commerce, as the Secretary considers appropriate. The Secretary is authorized to apply these regulations to persons who transport hazardous materials in commerce. In addition, the law authorizes the Secretary to apply these regulations to persons who cause hazardous materials to be transported in commerce. The law also authorizes the Secretary to apply these regulations to persons who manufacture or maintain a packaging or a component of a packaging that is represented, marked, certified, or sold as qualified for use in the transportation of a hazardous material in commerce. Federal hazardous material transportation law also applies to anyone who indicates by marking or other means that a hazardous material being transported in commerce is present in a package or transport conveyance when it is not, and to anyone who tampers with a package or transport conveyance used to transport hazardous materials in commerce or a required marking, label, placard, or shipping description. Regulations prescribed in accordance with Federal hazardous materials transportation law shall govern safety aspects, including security, of the transportation of hazardous materials that the Secretary considers appropriate. In 49 CFR 1.53, the Secretary delegated authority to issue regulations for the safe and secure transportation of hazardous materials in commerce to the Pipeline and Hazardous Materials Safety Administrator. The Administrator issues the Hazardous Materials Regulations (HMR; 49 CFR parts 171 through 180) under that delegated authority. This section addresses the applicability of the HMR to packagings represented as qualified for use in the transportation of hazardous materials in commerce and to pre-transportation and transportation functions.

(a) ***Packagings.*** Requirements in the HMR apply to each person who manufactures, fabricates, marks, maintains, reconditions, repairs, or tests a packaging or a component of a packaging that is represented, marked, certified, or sold as qualified for use in the transportation of a hazardous material in commerce, including each person under contract with any department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal government who manufactures, fabricates, marks, maintains, reconditions, repairs, or tests a packaging or a component of a packaging that is represented, marked, certified, or sold as qualified for use in the transportation of a hazardous material in commerce.

(b) ***Pre-transportation functions.*** Requirements in the HMR apply to each person who offers a hazardous material for transportation in commerce, causes a hazardous material to be transported in commerce, or transports a hazardous material in commerce and who performs or is responsible for performing a pre-transportation function, including each person performing pre-transportation functions under contract with any department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal government. Pre-transportation functions include, but are not limited to, the following:

(1) Determining the hazard class of a hazardous material.

(2) Selecting a hazardous materials packaging.

(3) Filling a hazardous materials packaging, including a bulk packaging.

(4) Securing a closure on a filled or partially filled hazardous materials package or container or on a package or container containing a residue of a hazardous material.

(5) Marking a package to indicate that it contains a hazardous material.

(6) Labeling a package to indicate that it contains a hazardous material.

(7) Preparing a shipping paper.

(8) Providing and maintaining emergency response information.

(9) Reviewing a shipping paper to verify compliance with the HMR or international equivalents.

(10) For each person importing a hazardous material into the United States, providing the shipper with timely and complete information as to the HMR requirements that will apply to the transportation of the material within the United States.

(11) Certifying that a hazardous material is in proper condition for transportation in conformance with the requirements of the HMR.

(12) Loading, blocking, and bracing a hazardous materials package in a freight container or transport vehicle.

(13) Segregating a hazardous materials package in a freight container or transport vehicle from incompatible cargo.

(14) Selecting, providing, or affixing placards for a freight container or transport vehicle to indicate that it contains a hazardous material.

(c) ***Transportation functions.*** Requirements in the HMR apply to transportation of a hazardous material in commerce and to each person who transports a hazardous material in commerce, including each person under contract with any department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal government who transports a hazardous material in commerce. Transportation of a hazardous material in commerce begins when a carrier takes physical possession of the hazardous material for the purpose of transporting it and continues until the package containing the hazardous material is delivered to the destination indicated on a shipping document, package marking, or other medium, or, in the case of a rail car, until the car is delivered to a private track or siding. For a private motor carrier, transportation of a hazardous material in commerce begins when a motor vehicle driver takes possession of a hazardous material for the purpose of transporting it and continues until the driver relinquishes possession of the package containing the hazardous material at its destination and is no longer responsible for performing functions subject to the HMR with respect to that particular package. Transportation of a hazardous material in commerce includes the following:

(1) ***Movement.*** Movement of a hazardous material by rail car, aircraft, motor vehicle, or vessel (except as delegated by Department of Homeland Security Delegation No. 0170 at 2(103)).

(2) ***Loading incidental to movement of a hazardous material.*** Loading of packaged or containerized hazardous material onto a transport vehicle, aircraft, or vessel for the purpose of transporting it, including blocking and bracing a hazardous materials package in a freight container or transport vehicle, and segregating a hazardous materials package in a freight container or transport vehicle from incompatible cargo, when performed by carrier personnel or in the presence of carrier

personnel. For a bulk packaging, loading incidental to movement is filling the packaging with a hazardous material for the purpose of transporting it when performed by carrier personnel or in the presence of carrier personnel (except as delegated by Department of Homeland Security Delegation No. 0170 at 2(103)), including transloading.

(3) ***Unloading incidental to movement of a hazardous material.*** Removing a package or containerized hazardous material from a transport vehicle, aircraft, or vessel; or for a bulk packaging, emptying a hazardous material from the bulk packaging after the hazardous material has been delivered to the consignee when performed by carrier personnel or in the presence of carrier personnel or, in the case of a private motor carrier, while the driver of the motor vehicle from which the hazardous material is being unloaded immediately after movement is completed is present during the unloading operation. (Emptying a hazardous material from a bulk packaging while the packaging is on board a vessel is subject to separate regulations as delegated by Department of Homeland Security Delegation No. 0170 at 2(103).) Unloading incidental to movement includes transloading.

(4) ***Storage incidental to movement of a hazardous material.*** Storage of a transport vehicle, freight container, or package containing a hazardous material by any person between the time that a carrier takes physical possession of the hazardous material for the purpose of transporting it until the package containing the hazardous material has been delivered to the destination indicated on a shipping document, package marking, or other medium, or, in the case of a private motor carrier, between the time that a motor vehicle driver takes physical possession of the hazardous material for the purpose of transporting it until the driver relinquishes possession of the package at its destination and is no longer responsible for performing functions subject to the HMR with respect to that particular package.

(i) Storage incidental to movement includes—

(A) Storage at the destination shown on a shipping document, including storage at a transloading facility, provided the original shipping documentation identifies the shipment as a through-shipment and identifies the final destination or destinations of the hazardous material; and

(B) A rail car containing a hazardous material that is stored on track that does not meet the definition of “private track or siding” in § 171.8, even if the car has been delivered to the destination shown on the shipping document.

(ii) Storage incidental to movement does not include storage of a hazardous material at its final destination as shown on a shipping document.

(d) ***Functions not subject to the requirements of the HMR.*** The following are examples of activities to which the HMR do not apply:

(1) Storage of a freight container, transport vehicle, or package containing a hazardous material at an offeror facility prior to a carrier taking possession of the hazardous material for movement in transportation in commerce or, for a private motor carrier, prior to a motor vehicle driver taking physical possession of the hazardous material for movement in transportation in commerce.

(2) Unloading of a hazardous material from a transport vehicle or a bulk packaging performed by a person employed by or working under contract to the consignee following delivery of the hazardous material by the carrier to its destination and departure from the consignee's premises of the carrier's personnel or, in the case of a private carrier, departure of the driver from the unloading area.

(3) Storage of a freight container, transport vehicle, or package containing a hazardous material after its delivery by a carrier to the destination indicated on a shipping document, package marking, or other medium, or, in the case of a rail car, storage of a rail car on private track.

(4) Rail and motor vehicle movements of a hazardous material exclusively within a contiguous facility boundary where public access is restricted, except to the extent that the movement is on or crosses a public road or is on track that is part of the general railroad system of transportation, unless access to the public road is restricted by signals, lights, gates, or similar controls.

(5) Transportation of a hazardous material in a motor vehicle, aircraft, or vessel operated by a Federal, state, or local government employee solely for noncommercial Federal, state, or local government purposes.

(6) Transportation of a hazardous material by an individual for non-commercial purposes in a private motor vehicle, including a leased or rented motor vehicle.

(7) Any matter subject to the postal laws and regulations of the United States.

(e) ***Requirements of other Federal agencies.*** Each facility at which pre-transportation or transportation functions are performed in accordance with the HMR may be subject to applicable standards and regulations of other Federal agencies.

(f) ***Requirements of state and local government agencies.***

(1) Under 49 U.S.C. 5125, a requirement of a state, political subdivision of a state, or an Indian tribe is preempted, unless otherwise authorized by another Federal statute or DOT issues a waiver of preemption, if—

(i) Complying with both the non-Federal requirement and Federal hazardous materials transportation law, the regulations issued under Federal hazardous material transportation law or a hazardous material transportation security regulation or directive issued by the Secretary of Homeland Security is not possible;

(ii) The non-Federal requirement, as applied or enforced, is an obstacle to accomplishing and carrying out Federal hazardous materials transportation law, the regulations issued under Federal hazardous material transportation law, or a hazardous material transportation security regulation or directive issued by the Secretary of Homeland Security;

(iii) The non-Federal requirement is not substantively the same as a provision of Federal hazardous materials transportation law, the regulations issued under Federal hazardous material transportation law, or a hazardous material transportation security regulation or directive issued by the Secretary of Homeland Security with respect to—

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

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

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

(D) The written notification, recording, and reporting of the unintentional release of hazardous material; or

(E) The design, manufacturing, fabricating, marking, maintenance, reconditioning, repairing, or testing of a package or container represented, marked, certified, or sold as qualified for use in transporting hazardous material.

(iv) A non-Federal designation, limitation or requirement on highway routes over which hazardous material may or may not be transported does not comply with the regulations in subparts C and D of part 397 of this title; or

(v) A fee related to the transportation of a hazardous material is not fair or is used for a purpose that is not related to transporting hazardous material, including enforcement and planning, developing, and maintaining a capability for emergency response.

(2) Subject to the limitations in paragraph (f)(1) of this section, each facility at which functions regulated under the HMR are performed may be subject to applicable laws and regulations of state and local governments and Indian tribes.

(3) The procedures for DOT to make administrative determinations of preemption are set forth in subpart E of part 397 of this title with respect to non-Federal requirements on highway routing (paragraph (f)(1)(iv) of this section) and in subpart C of part 107 of this chapter with respect to all other non-Federal requirements.

(g) ***Penalties for noncompliance.*** Each person who knowingly violates a requirement of the Federal hazardous material transportation law, an order issued under Federal hazardous material transportation law, subchapter A of this chapter, or a special permit or approval issued under subchapter A or C of this chapter is liable for a civil penalty of not more than $102,348 for each violation, except the maximum civil penalty is $238,809 if the violation results in death, serious illness, or severe injury to any person or substantial destruction of property. There is no minimum civil penalty, except for a minimum civil penalty of $617 for a violation relating to training.

[68 FR 61937, Oct. 30, 2003; 70 FR 20031, Apr. 15, 2005, as amended at 70 FR 73162, Dec. 9, 2005; 71 FR 44931, Aug. 8, 2006; 88 FR 1125, Jan. 6, 2023; 88 FR 89560, Dec. 28, 2023; 89 FR 106294, Dec. 30, 2024]

§ 171.2 General requirements.

(a) Each person who performs a function covered by this subchapter must perform that function in accordance with this subchapter.

(b) Each person who offers a hazardous material for transportation in commerce must comply with all applicable requirements of this subchapter, or an exemption or special permit, approval, or registration issued under this subchapter or under subchapter A of this chapter. There may be more than one offeror of a shipment of hazardous materials. Each offeror is responsible for complying with the requirements of this subchapter, or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter, with respect to any pre-transportation function that it performs or is required to perform; however, each offeror is responsible only for the specific pre-transportation functions that it performs or is required to perform, and each offeror may rely on information provided by another offeror, unless that offeror knows or, a reasonable person, acting in the circumstances and exercising reasonable care, would have knowledge that the information provided by the other offeror is incorrect.

(c) Each person who performs a function covered by or having an effect on a specification or activity prescribed in part 178, 179, or 180 of this subchapter, an approval issued under this subchapter, or an exemption or special permit issued under subchapter A of this chapter, must perform the function in accordance with that specification, approval, an exemption or special permit, as appropriate.

(d) No person may offer or accept a hazardous material for transportation in commerce or transport a hazardous material in commerce unless that person is registered in conformance with subpart G of part 107 of this chapter, if applicable.

(e) No person may offer or accept a hazardous material for transportation in commerce unless the hazardous material is properly classed, described, packaged, marked, labeled, and in condition for shipment as required or authorized by applicable requirements of this subchapter or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter.

(f) No person may transport a hazardous material in commerce unless the hazardous material is transported in accordance with applicable requirements of this subchapter, or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter. Each carrier who transports a hazardous material in commerce may rely on information provided by the offeror of the hazardous material or a prior carrier, unless the carrier knows or, a reasonable person, acting in the circumstances and exercising reasonable care, would have knowledge that the information provided by the offeror or prior carrier is incorrect.

(g) No person may represent, mark, certify, sell, or offer a packaging or container as meeting the requirements of this subchapter governing its use in the transportation of a hazardous material in commerce unless the packaging or container is manufactured, fabricated, marked, maintained, reconditioned, repaired, and retested in accordance with the applicable requirements of this subchapter. No person may represent, mark, certify, sell, or offer a packaging or container as meeting the requirements of an exemption, a special permit, approval, or registration issued under this subchapter or subchapter A of this chapter unless the packaging or container is manufactured, fabricated, marked, maintained, reconditioned, repaired, and retested in accordance with the applicable requirements of the exemption, special permit, approval, or registration issued under this subchapter or subchapter A of this chapter. The requirements of this paragraph apply whether or not the packaging or container is used or to be used for the transportation of a hazardous material.

(h) The representations, markings, and certifications subject to the prohibitions of paragraph (g) of this section include:

(1) Specification identifications that include the letters “ICC”, “DOT”, “TC”, “CTC”, “CRC”, “BTC”, “MC”, or “UN”;

(2) Exemption, special permit, approval, and registration numbers that include the letters “DOT”, “EX”, “M”, or “R”; and

(3) Test dates associated with specification, registration, approval, retest, exemption, or special permit markings indicating compliance with a test or retest requirement of the HMR, or an exemption, special permit, approval, or registration issued under the HMR or under subchapter A of this chapter.

(i) No person may certify that a hazardous material is offered for transportation in commerce in accordance with the requirements of this subchapter unless the hazardous material is properly classed, described, packaged, marked, labeled, and in condition for shipment as required or authorized by applicable requirements of this subchapter or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter. Each person who offers a package containing a

hazardous material for transportation in commerce in accordance with the requirements of this subchapter or an exemption or special permit, approval, or registration issued under this subchapter or subchapter A of this chapter, must assure that the package remains in condition for shipment until it is in the possession of the carrier.

(j) No person may, by marking or otherwise, represent that a container or package for transportation of a hazardous material is safe, certified, or in compliance with the requirements of this chapter unless it meets the requirements of all applicable regulations issued under Federal hazardous material transportation law.

(k) No person may, by marking or otherwise, represent that a hazardous material is present in a package, container, motor vehicle, rail car, aircraft, or vessel if the hazardous material is not present.

(l) No person may alter, remove, deface, destroy, or otherwise unlawfully tamper with any marking, label, placard, or description on a document required by Federal hazardous material transportation law or the regulations issued under Federal hazardous material transportation law. No person may alter, deface, destroy, or otherwise unlawfully tamper with a package, container, motor vehicle, rail car, aircraft, or vessel used for the transportation of hazardous materials.

(m) No person may falsify or alter an exemption or special permit, approval, registration, or other grant of authority issued under this subchapter or subchapter A of this chapter. No person may offer a hazardous material for transportation or transport a hazardous material in commerce under an exemption or special permit, approval, registration or other grant of authority issued under this subchapter or subchapter A of this chapter if such grant of authority has been altered without the consent of the issuing authority. No person may represent, mark, certify, or sell a packaging or container under an exemption or special permit, approval, registration or other grant of authority issued under this subchapter or subchapter A of this chapter if such grant of authority has been altered without the consent of the issuing authority.

[68 FR 61937, Oct. 30, 2003, as amended at 70 FR 43643, July 28, 2005; 70 FR 73162, Dec. 9, 2005; 82 FR 15833, Mar. 30, 2017]

§ 171.3 Hazardous waste.

(a) No person may offer for transportation or transport a hazardous waste (as defined in § 171.8 of this subchapter) in interstate or intrastate commerce except in accordance with the requirements of this subchapter.

(b) No person may accept for transportation, transport, or deliver a hazardous waste for which a manifest is required unless that person:

(1) Has marked each motor vehicle used to transport hazardous waste in accordance with § 390.21 of this title even though placards may not be required;

(2) Complies with the requirements for manifests set forth in § 172.205 of this subchapter; and

(3) Delivers, as designated on the manifest by the generator, the entire quantity of the waste received from the generator or a transporter to:

(i) The designated facility or, if not possible, to the designated alternate facility;

(ii) The designated subsequent carrier; or

(iii) A designated place outside the United States.

Note: Federal law specifies penalties up to $250,000 fine for an individual and $500,000 for a company and 5 years imprisonment for the willful discharge of hazardous waste at other than designated facilities. 49 U.S.C. 5124.

(c) If a discharge of hazardous waste or other hazardous material occurs during transportation, and an official of a State or local government or a Federal agency, acting within the scope of his official responsibilities, determines that immediate removal of the waste is necessary to prevent further consequence, that official may authorize the removal of the waste without the preparation of a manifest. [NOTE: In such cases, EPA does not require carriers to have EPA identification numbers.]

Note 1: EPA requires shippers (generators) and carriers (transporters) of hazardous wastes to have identification numbers which must be displayed on hazardous waste manifests. See 40 CFR parts 262 and 263. (Identification number application forms may be obtained from EPA regional offices.)

Note 2: In 40 CFR part 263, the EPA sets forth requirements for the cleanup of releases of hazardous wastes.

[Amdt. 171-53, 45 FR 34586, May 22, 1980, as amended by Amdt. 171-53, 45 FR 74648, Nov. 10, 1980; Amdt. 171-78, 49 FR 10510, Mar. 20, 1984; Amdt. 171-107, 54 FR 40068, Sept. 29, 1989; Amdt. 171-111, 55 FR 52466, Dec. 21, 1990; 56 FR 66157, Dec. 20, 1991; Amdt. 171-2, 59 FR 49132, Sept. 26, 1994; Amdt. 171-141, 61 FR 21102, May 9, 1996; 73 FR 57004, Oct. 1, 2008]

§ 171.4 Marine pollutants.

(a) Except as provided in paragraph (c) of this section, no person may offer for transportation or transport a marine pollutant, as defined in § 171.8, in intrastate or interstate commerce except in accordance with the requirements of this subchapter.

(b) The requirements of this subchapter for the transportation of marine pollutants are based on the provisions of Annex III of the 1973 International Convention for Prevention of Pollution from Ships, as modified by the Protocol of 1978 (MARPOL 73/78).

(c) ***Exceptions.***

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

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

[Amdt. 171-116, 57 FR 52934, Nov. 5, 1993, as amended by Amdt. 107-39, 61 FR 51337, Oct. 1, 1996; 80 FR 1114, Jan. 8, 2015]

§ 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 1995. 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 1995) 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 1995.

(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 1 to paragraph (b)(2):

Current OMB control No.	Title	Title 49 CFR part or section where identified and described
2137-0014	Cargo Tank Specification Requirements	§§ 107.503, 107.504, 178.320, 178.337, 178.338, 178.345, 180.407, 180.409, 180.413, 180.417.
2137-0018	Inspection and Testing of Portable Tanks and Intermediate Bulk Containers	§§ 173.24, 173.32, 178.3, 178.255, 178.273, 178.274, 178.703, 178.801, 180.352, 180.605.
2137-0022	Testing, Inspection, and Marking Requirements for Cylinders	§§ 173.5b, 173.302a, 173.303, 173.304, 173.309, 178.2, 178.3, 178.35, 178.44, 178.45, 178.46, 178.57, 178.59, 178.60, 178.61, 178.68, 180.205, 180.207, 180.209, 180.211, 180.213, 180.215, 180.217, appendix C to part 180.
2137-0034	Hazardous Materials Shipping Papers and Emergency Response Information	§§ 172.200, 172.201, 172.202, 172.203, 172.204, 172.505, 172.600, 172.602, 172.604, 172.606, 173.6, 173.7, 173.22, 173.56, 174.24, 174.26, 174.114, 175.30, 175.31, 175.33, 176.24, 176.27, 176.30, 176.36, 176.89, 177.817.
2137-0039	Hazardous Materials Incidents Reports	§§ 171.15, 171.16, 171.21.
2137-0051	Rulemaking and Special Permit Petitions	§§ 105.30, 105.40, 106.95, 106.110, 107.105, 107.107, 107.109, 107.113, 107.117, 107.121, 107.123, 107.125, 107.205, 107.211, 107.215, 107.217, 107.219, 107.221, 107.223.

Current OMB control No.	Title	Title 49 CFR part or section where identified and described
2137-0510	RAM Transportation Requirements	Part 173, subpart I, §§ 173.22, 173.411, 173.415, 173.416, 173.417, 173.457, 173.471, 173.472, 173.473, 173.476.
2137-0542	Flammable Cryogenic Liquids	§§ 173.318, 177.816, 177.840, 180.405.
2137-0557	Approvals for Hazardous Materials	§§ 107.402, 107.403, 107.405, 107.502, 107.503, 107.705, 107.713, 107.715, 107.717, 107.803, 107.805, 107.807, 110.30, 172.101, 172.102, Special Provisions 19, 26, 53, 55, 60, 105, 118, 121, 125, 129, 131, 133, 136, B45, B55, B61, B69, B77, B81, N10, N72, 173.2a, 173.4, 173.7, 173.21, 173.22, 173.24, 173.31, 173.38, 173.51, 173.56, 173.58, 173.59, 173.124, 173.128, 173.159, 173.166, 173.171, 173.214, 173.222, 173.224, 173.225, 173.245, 173.301, 173.305, 173.306, 173.314, 173.315, 173.316, 173.318, 173.334, 173.340, 173.411, 173.433, 173.457, 173.471, 173.472, 173.476, 174.50, 174.63, 175.8, 175.85, 175.701, 175.703, 176.168, 176.340, 176.704, 178.3, 178.35, 178.47, 178.53, 178.273, 178.274, 178.503, 178.509, 178.605, 178.606, 178.608, 178.801, 178.813, 180.213.
2137-0559	(Rail Carriers and Tank Car Tank Requirements) Requirements for Rail Tank Car Tanks—Transportation of Hazardous Materials by Rail.	§§ 172.102, Special provisions: B45, B46, B55, B61, B69, B77, B78, B81; 173.10, 173.31, 174.20, 174.50, 174.63, 174.104, 174.114, 174.204, 179.3, 179.4, 179.5, 179.6, 179.7, 179.11, 179.18, 179.22, 179.100-9, 179.100-12, 179.100-13, 179.100-16, 179.100-17, 179.102-4, 179.102-17, 179.103-1, 179.103-2, 179.103-3, 179.103-5, 179.200-10, 179.200-14, 179.200-15, 179.200-16, 179.200-17, 179.200-19, 179.201-3, 179.201-8, 179.201-9, 179.220-4, 179.220-7, 179.220-8, 179.220-13, 179.220-15, 179.220-17, 179.220-18, 179.220-20, 179.220-22, 179.300-3, 179.300-7, 179.300-9, 179.300-12, 179.300-13, 179.300-15, 179.300-20, 179.400-3, 179.400-4, 179.400-11, 179.400-13, 179.400-16, 179.400-17, 179.400-19, 179.400-20, 179.500-5, 179.500-8, 179.500-12, 179.500-18, 180.505, 180.509, 180.515, 180.517.
2137-0572	Testing requirements for non-bulk packages	§§ 173.168, 178.2, 178.601, appendix C to part 178, appendix D to part 178.
2137-0582	Container Certification Statement	§§ 176.27, 176.172.
2137-0586	Hazardous Materials Public Sector Training and Planning Grants	Part 110.
2137-0591	Response Plans for Shipments of Oil	Part 130.

Current OMB control No.	Title	Title 49 CFR part or section where identified and described
2137-0595	Cargo Tank Motor Vehicles in Liquefied Compressed Gas Service	§§ 173.315, 178.337-8, 178.337-9, 180.405, 180.416.
2137-0612	Hazardous Materials Security Plans	Part 172, subpart I, §§ 172.800, 172.802, 172.804.
2137-0613	Subsidiary Hazard Class and Number/ Type of Packagings	§§ 172.202, 172.203
2137-0620	Inspection and Testing of Meter Provers	Part 173, subpart A, § 173.5a.
2137-0621	Requirements for United Nations (UN) Cylinders	§§ 173.301, 173.304, 173.304b, 178.69, 178.70, 178.74, 178.75, 180.207, 180.209, 180.212, 180.215, 180.217.
2137-0628	Flammable Hazardous Materials by Rail Transportation	§§ 130.120, 171.16, 173.41, 173.145, 173.150, 174.310, 174.312.

[Amdt. 171-111, 56 FR 66157, Dec. 20, 1991]

Editorial Note: For FEDERAL REGISTER citations affecting § 171.6, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§ 171.7 Reference material.

(a) Certain material is incorporated by reference into subchapters A, B, and C with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, PHMSA must publish a document in the FEDERAL REGISTER and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at PHMSA and at the National Archives and Records Administration (NARA). Contact PHMSA at: The Office of Hazardous Materials Safety, Office of Hazardous Materials Standards, East Building, PHH-10, 1200 New Jersey Avenue SE, Washington, DC 20590-0001. For information on the availability of this material at PHH-10, call 1-800-467-4922, or go to: *www.phmsa.dot.gov*. For information on the availability of this material at NARA, email: *fr.inspection@nara.gov,* or go to: *www.archives.gov/federal-register/cfr/ibr-locations.html*. The material may be obtained from the source(s) in the following paragraph(s) of this section.

(b) ***Air Transport Association of America,*** 1301 Pennsylvania Avenue NW., Washington, DC 20004-1707.

(1) ATA Specification No. 300 Packaging of Airline Supplies, Revision 19, July 31, 1996, into §§ 172.102, 173.168, 173.302, and 173.304.

(2) [Reserved]

(c) ***The Aluminum Association,*** 1525 Wilson Blvd., Suite 6000, Arlington, VA 22209, telephone 703-358-2960, *http://www.aluminum.org*.

(1) Aluminum Standards and Data, Seventh Edition, June 1982, into §§ 172.102; 178.65.

(2) Welding Aluminum: Theory and Practice, 2002 Fourth Edition, into § 178.68.

(d) ***American National Standards Institute, Inc.,*** 25 West 43rd Street, New York, NY 10036.

(1) ANSI/ASHRAE 15-94, Safety Code for Mechanical Refrigeration, 1944, into §§ 173.306; 173.307.

(2) ANSI N14.1 Uranium Hexafluoride—Packaging for Transport, 1971 Edition, into §§ 173.417; 173.420.

(3) ANSI N14.1 Uranium Hexafluoride—Packaging for Transport, 1982 Edition, into §§ 173.417; 173.420.

(4) ANSI N14.1 Uranium Hexafluoride—Packaging for Transport, 1987 Edition, into §§ 173.417; 173.420.

(5) ANSI N14.1 Uranium Hexafluoride—Packaging for Transport, 1990 Edition, into §§ 173.417; 173.420.

(6) ANSI N14.1 Uranium Hexafluoride—Packaging for Transport, 1995 Edition, into §§ 173.417; 173.420.

(7) ANSI N14.1 Uranium Hexafluoride—Packaging for Transport, 2001 Edition, into §§ 173.417; 173.420.

(e) ***American Petroleum Institute,*** 1220 L Street NW., Washington, DC 20005-4070.

(1) API Recommended Practice Closures of Underground Petroleum Storage Tanks, 3rd Edition, March 1996, into § 172.102.

(2) [Reserved]

(f) ***American Pyrotechnics Association*** (APA), P.O. Box 30438, Bethesda, MD 20824, (301) 907-8181, *www.americanpyro.com*.

(1) APA 87-1A: Standard for the Construction, Classification, Approval and Transportation of Consumer Fireworks, final draft January 1, 2018 (excluding appendices II through VI), into §§ 107.402(d); 173.59; 173.64; and 173.65.

(2) APA 87-1B: Standard for the Construction, Classification, Approval, and Transportation of Display Fireworks, final draft January 1, 2018 (excluding appendices II through IV), into § 173.64.

(3) APA 87-1C: Standard for the Construction, Classification, Approval, and Transportation of Entertainment Industry and Technical (EI&T) Pyrotechnics, final draft January 1, 2018 (excluding appendices II through IV), into § 173.64.

(g) ***The American Society of Mechanical Engineers*** (ASME), 150 Clove Road, Little Falls, NJ 07424-2139, telephone: 1-800-843-2763, *http://www.asme.org*.

(1) ASME Boiler and Pressure Vessel Code (ASME Code), 2017 Edition, July 1, 2017 (as follows), into §§ 172.102; 173.3; 173.5b; 173.24b; 173.306; 173.315; 173.318; 173.420; 178.255-1; 178.255-2; 178.255-14; 178.255-15; 178.273; 178.274; 178.276; 178.277; 178.320; 178.337-1; 178.337-2; 178.337-3; 178.337-4; 178.337-6; 178.337-16; 178.337-18; 178.338-1; 178.338-2; 178.338-3;

178.338-4; 178.338-5; 178.338-6; 178.338-13; 178.338-16; 178.338-18; 178.338-19; 178.345-1; 178.345-2; 178.345-3; 178.345-4; 178.345-7; 178.345-14; 178.345-15; 178.346-1; 178.347-1; 178.348-1; 179.400-3; 180.407:

(i) ASME BPVC.II.A-2017 (vols. 1 and 2), Section II—Materials—Part A—Ferrous Materials Specifications.

(ii) ASME BPVC.II.B-2017, Section II—Materials—Part B—Nonferrous Material Specifications.

(iii) ASME BPVC.V-2017, Section V—Nondestructive Examination.

(iv) ASME BPVC.VIII.1-2017, Section VIII—Rules for Construction of Pressure Vessels Division 1.

(v) ASME BPVC.IX-2017, Section IX—Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators.

Note 1 to paragraph (g)(1): The requirement for a 6% knuckle radius on torispherical heads are excepted.

(2) ASME B31.4-2012, Pipeline Transportation Systems for Liquids and Slurries, November 12, 2012, into § 173.5a.

(h) ***ASTM International,*** 100 Barr Harbor Drive, West Conshohocken, PA 1942, telephone (610) 832-9585, *http://www.astm.org.* Copies of historical standards or standards that ASTM does not have may be purchased from: Engineering Societies Library, 354 East 47th Street, New York, NY 10017.

(1) ASTM A 20/A 20M-93a Standard Specification for General Requirements for Steel Plates for Pressure Vessels, 1993, into §§ 178.337-2; 179.102-4; 179.102-1; 179.102-17.

(2) ASTM A 47-68 Malleable Iron Castings, 1968, into § 179.200-15.

(3) ASTM A 53/A 53M-06a (ASTM A 53) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, 2006, into § 173.5b.

(4) ASTM A 106/A 106M-06a (ASTM A 106) Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service, 2006, into § 173.5b.

(5) ASTM A 240/A 240M-99b Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels, 1999, into §§ 178.57; 178.358-5; 179.100-7; 179.100-10; 179.102-1; 179.102-4; 179.102-17; 179.200-7; 179.201-5; 179.220-7; 179.300-7; 179.400-5.

(6) ASTM A 242-81 Standard Specification for High-Strength Low-Alloy Structural Steel, 1981, into § 178.338-2.

(7) ASTM A 262-93a Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels, 1993, into 179.100-7; 179.200-7; 179.201-4.

(8) ASTM A 285-78 Pressure Vessel Plates, Carbon Steel, Low- and Intermediate-Tensile Strength, 1978, into § 179.300-7.

(9) ASTM A 300-58 Steel Plates for Pressure Vessels for Service at Low Temperatures, 1958, into § 178.337-2.

(10) ASTM A 302/A 302M-93 Standard Specification for Pressure Vessel Plates, Alloy Steel, Manganese-Molybdenum and Manganese-Molybdenum Nickel, 1993, into § 179.100-7; 179.200-7; 179.220-7.

(11) ASTM A 333-67 Seamless and Welded Steel Pipe for Low-Temperature Service, 1967, into § 178.45.

(12) ASTM A 370-94 Standard Test 179.102-1; 179.102-4; Methods and Definitions for Mechanical Testing of Steel Products, 1994, into §§ 179.102-17; 179.102-1; 179.102-4.

(13) ASTM A 441-81 Standard Specification for High-Strength Low-Alloy Structural Manganese Vanadium Steel, 1981, into § 178.338-2.

(14) ASTM A 514-81 Standard Specification for High-Yield Strength Quenched and Tempered Alloy Steel Plate, Suitable for Welding, 1981, into § 178.338-2.

(15) ASTM A 515/A 515M-03 Standard Specification for Pressure Vessel Plates, Carbon Steel, for Intermediate- and Higher-Temperature Service, 2003, into § 179.300-7.

(16) ASTM A 516/A 516M-90 Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate and Lower-Temperature Service, 1990, into § 178.337-2; 179.100-7; 179.102-1; 179.102-2; 179.102-4; 179.102-17; 179.200-7; 179.220-7; 179.300-7.

(17) ASTM A 537/A 537M-91 Standard Specification for Pressure Vessel Plates, Heat-Treated, Carbon-Manganese-Silicon Steel, 1991, into § 179.100-7; 179.102-4; 179.102-17.

(18) ASTM A 572-82 Standard Specification for High-Strength Low-Alloy Columbian-Vanadium Steels of Structural Quality, 1982, into § 178.338-2.

(19) ASTM A 588-81 Standard Specification for High-Strength Low-Alloy Structural Steel with 50 Ksi Minimum Yield Point to 4 in. Thick, 1981, into § 178.338-2.

(20) ASTM A 606-75 Standard Specification for Steel Sheet and Strip Hot-Rolled and Cold-Rolled, High-Strength, Low-Alloy, with Improved Atmospheric Corrosion Resistance, 1975 (Reapproved 1981), into § 178.338-2.

(21) ASTM A 607-98 Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Columbium or Vanadium, or Both, Hot-Rolled and Cold-Rolled, 1998, into § 178.338-2.

(22) ASTM A 612-72a High Strength Steel Plates for Pressure Vessels for Moderate and Lower Temperature Service, 1972, into § 178.337-2.

(23) ASTM A 633-79a Standard Specification for Normalized High-Strength Low-Alloy Structural Steel, 1979 Edition, into § 178.338-2.

(24) ASTM A 715-81 Standard Specification for Steel Sheet and Strip, Hot-Rolled, High-Strength, Low-Alloy with Improved Formability, 1981, into § 178.338-2.

(25) ASTM A 1008/A 1008M-03 Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High Strength Low-Alloy with Improved Formability, 2003, into § 178.338-2; 178.345-2.

(26) ASTM A 1011/A 1011M-03a Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low Alloy and High Strength Low-Alloy with Improved Formability, 2003, into § 178.338-2; 178.345-2.

(27) ASTM B 162-93a Standard Specification for Nickel Plate, Sheet, and Strip, 1993, into § 173.249; 179.200-7.

(28) ASTM B 209-93 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate, 1993, into § 179.100-7; 179.200-7; 179.220-7.

(29) ASTM B 221-76 Aluminum Alloy Extruded Bars, Rods, Shapes, and Tubes, 1976, into § 178.46.

(30) ASTM B 557-84 Tension Testing Wrought and Cast Aluminum and Magnesium-Alloy Products, 1984, into § 178.46.

(31) ASTM B 580-79 Standard Specification for Anodic Oxide Coatings on Aluminum, (Re-approved 2000), into § 173.316; 173.318; 178.338-17.

(32) ASTM D 56-05, Standard Test Method for Flash Point by Tag Closed Cup Tester, approved May 1, 2005, into § 173.120.

(33) ASTM D 86-07a, Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure, approved April 1, 2007, into § 173.121.

(34) ASTM D 93-08, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester, approved October 15, 2008, into § 173.120.

(35) ASTM D 1078-05, Standard Test Method for Distillation Range of Volatile Organic Liquids, approved May 15, 2005, into § 173.121.

(36) ASTM D 1238-90b Standard Test Method for Flow Rates of Thermoplastics for Extrusion Plastometer, 1990, into § 173.225.

(37) ASTM D 1709-01 Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method, 2001, into § 173.197.

(38) ASTM D 1835-97 Standard Specification for Liquefied Petroleum (LP) Gases, 1997, into § 180.209.

(39) ASTM D 1838-64 Copper Strip Corrosion by Liquefied Petroleum (LP) Gases, 1964, into § 173.315.

(40) ASTM D 1922-00a Standard Test Method for Propogation Tear Resistance of Plastic Film and Thin Sheeting by Pendulum Method, 2000, into § 173.197.

(41) ASTM D 3278-96 (Reapproved 2004) E1, Standard Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus, approved November 1, 2004, into § 173.120.

(42) ASTM D 3828-07a, Standard Test Methods for Flash Point by Small Scale Closed Cup Tester, approved July 15, 2007, § 173.120.

(43) ASTM D 4206-96 Standard Test Method for Sustained Burning of Liquid Mixtures Using the Small Scale Open-Cup Apparatus, 1996, into § 173.120.

(44) ASTM D 4359-90 Standard Test Method for Determining Whether a Material is a Liquid or a Solid, 1990 into §§ 130.5, 171.8.

(45) ASTM D7900-13^{e1}, Standard Test Method for Determination of Light Hydrocarbons in Stabilized Crude Oils by Gas Chromatography, Approved December 1, 2013, into § 173.121.

(46) ASTM E 8-99 Standard Test Methods for Tension Testing of Metallic Materials, 1999, into § 178.36; 178.37; 178.38; 178.39; 178.44; 178.45; 178.50; 178.51; 178.53; 178.55; 178.56; 178.57; 178.58; 178.59; 178.60; 178.61; 178.68.

(47) ASTM E 23-98 Standard Test Methods for Notched Bar Impact Testing of Metallic Materials, 1998, into § 178.57.

(48) ASTM E 112-88 Standard Test Methods for Determining Average Grain Size, 1988, into § 178.44.

(49) ASTM E 112-96 Standard Test Methods for Determining Average Grain Size, 1996 Edition, into § 178.274; part 178, appendix A.

(50) ASTM E 114-95 Standard Practice for Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method, 1995, into § 178.45.

(51) ASTM E 213-98 Standard Practice for Ultrasonic Examination of Metal Pipe and Tubing, into § 178.45.

(52) ASTM E 290-97a Standard Test Methods for Bend Testing of Material for Ductility, published February 1998, into § 178.37.

(i) [Reserved]

(j) ***American Welding Society,*** 550 NW. Le Jeune Road, Miami, Florida 33126.

(1) AWS Code B 3.0; Standard Qualification Procedure; 1972 (FRB 3.0-41, rev. May 1973), into §§ 178.356-2, 178.358-2.

(2) AWS Code D 1.0; Code for Welding in Building Construction (FR D 1.0-66, 1966), into §§ 178.356-2; 178.358-2.

(k) ***Association of American Railroads,*** American Railroads Building, 50 F Street NW., Washington, DC 20001; telephone (877) 999-8824, *http://www.aar.org/publications.com.*

(1) AAR Manual of Standards and Recommended Practices, Section C—Part III, Specifications for Tank Cars, Specification M-1002, (AAR Specifications for Tank Cars), December 2000, §§ 173.31; 179.6; 179.7; 179.15; 179.16; 179.20; 179.22; 179.24; 179.100-9; 179.100-10; 179.100-12; 179.100-13; 179.100-14; 179.100-18; 179.101-1; 179.102-1; 179.102-4; 179.102-17; 179.103-5; 179.200-7; 179.200-9; 179.200-10; 179.200-11; 179.200-13; 179.200-17; 179.200-22; 179.201-6; 179.220-6; 179.220-7; 179.220-10; 179.220-11; 179.220-14; 179.220-18; 179.220-26; 179.300-9; 179.300-10; 179.300-15; 179.300-17; 179.400-5; 179.400-6; 179.400-8; 179.400-11; 179.400-12; 179.400-15; 179.400-18; 179.400-20; 179.400-25; 180.503; 180.509; 180.513; 180.515; 180.517.

(2) AAR Manual of Standards and Recommended Practices, Section C—III, Specifications for Tank Cars, Specification M-1002 (AAR Specifications for Tank Cars), Appendix E, Design Details, implemented April 2010; into §§ 179.202-9, and 179.202-12(f).

(3) AAR Manual of Standards and Recommended Practices, Section I, Specially Equipped Freight Car and Intermodal Equipment, 1988, into § 174.55; 174.63.

(4) AAR Specifications for Design, Fabrication and Construction of Freight Cars, Volume 1, 1988, into § 179.16.

(5) AAR Standard 286; AAR Manual of Standards and Recommended Practices, Section C, Car Construction Fundamentals and Details, Standard S-286, Free/Unrestricted Interchange for 286,000 lb Gross Rail Load Cars (Adopted 2002; Revised: 2003, 2005, 2006), into 179.13.

(l) ***Chlorine Institute, Inc.,*** 1300 Wilson Boulevard, Arlington, VA 22209.

(1) Chlorine Institute Emergency Kit “A” for 100-lb. & 150-lb. Chlorine Cylinders, Edition 12, Revision 2, January 2014, into § 173.3.

(2) Chlorine Institute Emergency Kit “B” for Chlorine Ton Containers, Edition 11, July 2014, into § 173.3.

(3) Type 1 JQ 225, Dwg., H51970, Revision F, November 1996, into § 173.315.

(4) Type 1 JQ 225, Dwg. H50155, Revision H, November 1996, into § 173.315.

(5) Pamphlet 57, Emergency Shut-Off Systems for Bulk Transfer of Chlorine, Edition 6, June 2015, into § 177.840.

(6) Section 3, Pamphlet 166, Angle Valve Guidelines for Chlorine Bulk Transportation, 1st Edition, October 2002, into § 178.337-9.

(7) Pamphlet 168, Guidelines for Dual Valve Systems for Bulk Chlorine Transport, Edition 2, July 2015, into § 178.337-9.

(8) Standard Chlorine Angle Valve Assembly, Dwg. 104-8, July 1993, into § 178.337-9.

(9) Excess Flow Valve with Removable Seat, Dwg. 101-7, July 1993, into § 178.337-8.

(10) Excess Flow Valve with Removable Basket, Dwg. 106-6, July 1993, into § 178.337-8.

(11) Standards for Housing and Manway Covers for Steel Cargo Tanks, Dwgs. 137-1 and 137-2, September 1, 1982, into § 178.337-10.

(12) Typical Manway Arrangement Chlorine Cargo Tank, Dwg 137-5, November 1996, into 178.337-10.

(m) ***Canadian General Standards Board*** , Place du Portage III, 6B1 11 Laurier Street, Gatineau, Quebec, Canada K1A 1G6.

(1) National Standard of Canada (CAN/CGSB 43.147—2005) Construction, Modification, Qualification, Maintenance, and Selection and Use of Means of Containment for the Handling, Offering for Transport, or Transportation of Dangerous Goods by Rail, into § 171.12.

(2) [Reserved]

(n) ***Compressed Gas Association (CGA),*** 8484 Westpark Drive, Suite 220, McLean, VA 22102; telephone 703-788-2700, *www.cganet.com*.

(1) CGA C-1—2016 (CGA C-1), Methods for Pressure Testing Compressed Gas Cylinders, Eleventh Edition, copyright 2016; into §§ 178.36; 178.37; 178.38; 178.39; 178.42; 178.44; 178.45; 178.46; 178.47; 178.50; 178.51; 178.53; 178.55; 178.56; 178.57; 178.58; 178.59; 178.60; 178.61; 178.65; 178.68; 180.205; 180.209.

(2) CGA C-3—2005 (Reaffirmed 2011) (CGA C-3), Standards for Welding on Thin-Walled Steel Cylinders, Seventh Edition, copyright 2005; into §§ 178.47; 178.50; 178.51; 178.53; 178.55; 178.56; 178.57; 178.58; 178.59; 178.60; 178.61; 178.65; 178.68; 180.211.

(3) CGA C-5 (CGA C-5), Cylinder Service Life—Seamless Steel High Pressure Cylinders, 1991 (Reaffirmed 1995); into § 173.302a.

(4) CGA C-6—2013 (CGA C-6), Standards for Visual Inspection of Steel Compressed Gas Cylinders, Eleventh Edition, copyright 2013; into §§ 172.102; 173.3; 173.198; 180.205; 180.209; 180.211; 180.411; 180.519.

(5) CGA C-6.1—2013 (CGA C-6.1), Standards for Visual Inspection of High Pressure Aluminum Compressed Gas Cylinders, Sixth Edition, copyright 2013 (corrected 4/14/2015); into §§ 180.205; 180.209.

(6) CGA C-6.2 (CGA C-6.2), Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders, Third Edition, 1996; into § 180.205.

(7) CGA C-6.3—2013 (CGA C-6.3), Standard for Visual Inspection of Low Pressure Aluminum Alloy Compressed Gas Cylinders, Third Edition, copyright 2013; into §§ 180.205; 180.209.

(8) CGA C-7—2020 (CGA C-7), Guide to Classification and Labeling of Compressed Gases; Eleventh Edition, 2020 (corrected May 6, 2020); into § 172.400a.

(9) CGA C-8 (CGA C-8), Standard for Requalification of DOT-3HT Cylinder Design, 1985; into §§ 180.205; 180.209.

(10) CGA C-11—2013 (CGA C-11), Practices for Inspection of Compressed Gas Cylinders at Time of Manufacture, Fifth Edition, copyright 2013; into § 178.35.

(11) CGA C-12 (CGA C-12), Qualification Procedure for Acetylene Cylinder Design, 1994; into §§ 173.301; 173.303; 178.59; 178.60.

(12) CGA C-13 (CGA C-13), Guidelines for Periodic Visual Inspection and Requalification of Acetylene Cylinders, Fourth Edition, 2000; into §§ 173.303; 180.205; 180.209.

(13) CGA C-14—2005 (Reaffirmed 2010) (CGA C-14), Procedures for Fire Testing of DOT Cylinder Pressure Relief Device Systems, Fourth Edition, copyright 2005; into §§ 173.301; 173.323.

(14) CGA C-20—2014 (CGA C-20), Requalification Standard for Metallic, DOT and TC 3-series Gas Cylinders and Tubes Using Ultrasonic Examination, Second Edition, 2014; into § 180.205.

(15) CGA C-23—2018 (CGA C-23), Standard for Inspection of DOT/TC 3 Series and ISO 11120, Tube Neck Mounting Surfaces, Second Edition, 2018; into §§ 180.205; 180.207.

(16) CGA C-27—2019 (CGA C-27), Standard Procedure to Derate the Service Pressure of DOT Series Seamless Steel Tubes, First Edition, 2019; into § 180.212.

(17) CGA C-29—2019, (Formerly TB-25) (CGA C-29), Standard for Design Requirements for Tube Trailers and Tube Modules, First Edition, 2019; into § 173.301.

(18) CGA G-1.6—2011 (CGA G-1.6), Standard for Mobile Acetylene Trailer Systems, Seventh Edition, copyright 2011; into § 173.301.

(19) CGA G-2.2 (CGA G-2.2), Guideline Method for Determining Minimum of 0.2% Water in Anhydrous Ammonia, Second Edition, 1985 (Reaffirmed 1997); into § 173.315.

(20) CGA G-4.1 (CGA G-4.1), Cleaning Equipment for Oxygen Service, 1985; into § 178.338-15.

(21) CGA P-20 (CGA P-20), Standard for the Classification of Toxic Gas Mixtures, Third Edition, 2003; into § 173.115.

(22) CGA S-1.1—2011 (CGA S-1.1), Pressure Relief Device Standards—Part 1—Cylinders for Compressed Gases; Fourteenth Edition, copyright 2011; into §§ 173.301; 173.304a; 178.75.

(23) CGA S-1.2 (CGA S-1.2), Safety Relief Device Standards Part 2—Cargo and Portable Tanks for Compressed Gases, 1980; into §§ 173.315; 173.318; 178.276; 178.277.

(24) CGA S-7—2013 (CGA S-7), Standard for Selecting Pressure Relief Devices for Compressed Gas Mixtures in Cylinders, Fifth Edition, copyright 2013; into § 173.301.

(25) CGA Technical Bulletin TB-2, Guidelines for Inspection and Repair of MC-330 and MC-331 Cargo Tanks, 1980; into §§ 180.407; 180.413.

(26) CGA Technical Bulletin TB-25 (CGA TB-25), Design Considerations for Tube Trailers, 2008 Edition; into § 173.301.

(27) CGA V-9—2019, Compressed Gas Association Standard for Compressed Cylinder Valves, Eighth Edition, 2019; into § 173.301.

(o) ***Department of Defense (DoD),*** DoD Explosives Safety Board, 4800 Mark Center Drive, Suite 16E12, Alexandria, VA 22350, *https://www.ddesb.pentagon.mil/;* or Defense Logistics Agency, Technical and Quality Assurance Division, 8725 John J. Kingman Rd., Fort Belvoir, VA 22060, *http://www.dla.mil/Pages/default.aspx.*

(1) TB 700-2; NAVSEAINST 8020.8C/TO 11A-1-47: DOD Ammunition and Explosives Hazard Classification Procedures, July 30, 2012, into § 173.56.

(2) DLAR 4145.41/AR 700-143/NAVSUPINST 4030.55D/AFMAN 24-210__IP/MCO 4030.40C: Packaging of Hazardous Material, April 21, 2015, into § 173.7.

(p) ***European Union. Rue de la Loi/Wetstraat, 175B-1048 Bruxelles/Brussel Belgique/België], https://europa.eu/european-union/documents-publications_en.***

(1) Directive 2010/35/EU of the European Parliament and of the Council, "on transportable pressure equipment and repealing Council Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC", June 16, 2010, into § 171.23.

(2) [Reserved]

(q) ***General Services Administration,*** Specification Office, Room 6662, 7th and D Street, S.W., Washington, DC 20407.

(1) Federal Specification RR-C-901D, Cylinders, Compressed Gas: Seamless Shatterproof, High Pressure DOT 3AA Steel, and 3AL Aluminum, February 21, 2003, into §§ 173.302; 173.336; 173.337.

(2) [Reserved]

(r) ***Institute of Makers of Explosives (IME),*** 1212 New York Avenue NW, #650, Washington, DC 20005, Phone: 202-429-9280.

(1) IME SLP-22, Recommendations for the Safe Transportation of Detonators in a Vehicle with Certain Other Explosive Materials, 2019, (IME Standard 22); into §§ 173.63; 177.835.

(2) IME SLP-23, Recommendations for the Transportation of Explosives, Division 1.5, Ammonium Nitrate Emulsions, Division 5.1, Combustible Liquids, Class 3, and Corrosives, Class 8 in Bulk Packaging, March 2021, (IME Standard 23); into §§ 172.102 173.66; 173.251; 177.835.

(s) ***International Atomic Energy Agency (IAEA),*** P.O. Box 100, Wagramer Strasse 5, A-1400 Vienna, Austria. Also available from: Bernan Associates, 4611-F Assembly Drive, Lanham, MD 20706-4391, USA; or Renouf Publishing Company, Ltd., 812 Proctor Avenue, Ogdensburg, New York 13669, USA.

(1) IAEA Safety Standards for Protecting People and the Environment; Regulations for the Safe Transport of Radioactive Material, Specific Safety Requirements No. SSR-6 (Rev.1), (IAEA Regulations), 2018 Edition, copyright 2018; into §§ 171.22; 171.23; 171.26; 173.415 through 173.417; 173.435; 173.473.

(2) Code of Conduct on the Safety and Security of Radioactive Sources (International Atomic Energy Agency Code of Conduct), copyright 2004, into § 172.800.

(t) ***International Civil Aviation Organization ("ICAO"),*** 999 Robert-Bourassa Boulevard, Montréal, Quebec H3C 5H7, Canada, 1-514-954-8219, *http://www.icao.int*. ICAO Technical Instructions available from: ICAO Document Sales Unit, *sales@icao.int*.

(1) ICAO Doc 9284 Technical Instructions for the Safe Transport of Dangerous Goods by Air, 2023-2024 Edition, 2022; into §§ 171.8; 171.22 through 171.24; 172.101; 172.202; 172.401; 172.407; 172.512; 172.519; 172.602; 173.56; 173.320; 175.10, 175.33; 178.3.

(2) [Reserved]

(u) International Electrotechnical Commission (IEC), 3 rue de Varembé, P.O. Box 131, CH—1211, GENEVA 20, Switzerland.

(1) IEC 62282-6-100:2010(E), Fuel cell technologies—Part 6-100: Micro fuel cell power systems—Safety, Edition 1.0, March 2010, into §§ 173.230; 175.10.

(2) 62282-6-100 Amend. 1 IEC 2012(E), Amendment 1 to IEC 62282-6-100: Fuel cell technologies—Part 6-100: Micro fuel cell power systems—Safety, Edition 1.0, October 2012, into §§ 173.230; 175.10

(v) ***International Maritime Organization ("IMO"),*** 4 Albert Embankment, London, SE1 7SR, United Kingdom, + 44 (0) 20 7735 7611, *http://www.imo.org.* IMDG Code available from: IMO Publishing, *sales@imo.org.*

(1) International Convention for the Safety of Life at Sea, 1974, Consolidated Edition (SOLAS), Chapter II-2, Construction—Fire protection, fire detection and fire extinction, Regulation 19, Carriage of dangerous goods, Fifth Edition 2009, into §§ 176.63, 176.84.

(2) International Maritime Dangerous Goods Code (IMDG Code), Incorporating Amendment 41-22 (English Edition), 2022 Edition; 2022; into §§ 171.22; 171.23; 171.25; 172.101; 172.202; 172.203; 172.401; 172.407; 172.502; 172.519; 172.602; 173.21; 173.56; 176.2; 176.5; 176.11; 176.27; 176.30; 176.83; 176.84; 176.140; 176.720; 176.906; 178.3; 178.274.

(i) Volume 1, Incorporating Amendment 41-22 (Vol. 1).

(ii) Volume 2, Incorporating Amendment 41-22 (Vol. 2).

(w) ***International Organization for Standardization,*** Case Postale 56, CH-1211, Geneve 20, Switzerland, *http://www.iso.org*. Also available from: ANSI 25, West 43rd Street, New York, NY 10036, 1-212-642-4900, *http://www.ansi.org*.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(16) ISO 3807:2013(E), Gas cylinders—Acetylene cylinders—Basic requirements and type testing, Second edition, 2013-09-01, into §§ 173.303; 178.71.

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

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

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

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

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

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

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

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

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

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

(27) ISO 7866:2012(E), Gas cylinders—Refillable seamless aluminium alloy gas cylinders—Design, construction and testing, Second edition, 2012-09-01, into § 178.71.

(28) ISO 7866:2012/Cor.1:2014(E), Gas cylinders — Refillable seamless aluminium alloy gas cylinders — Design, construction and testing, Technical Corrigendum 1, 2014-04-15, into § 178.71.

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

(30) ISO 9809-1:1999(E): Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa., First edition, June 1999, into §§ 178.37; 178.71; 178.75.

(31) ISO 9809-1:2010(E): Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 1: Quenched and tempered steel cylinders with tensile strength less than 1 100 MPa., Second edition, 2010-04-15, into §§ 178.37; 178.71; 178.75.

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(33) ISO 9809-2:2000(E): Gas cylinders—Refillable seamless steel gas cylinders—Design, construction and testing—Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1 100 MPa., First edition, June 2000; into §§ 178.71; 178.75.

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

(35) ISO 9809-2:2019(E): Gas cylinders—Design, construction and testing of refillable seamless steel gas cylinders and tubes—Part 2: Quenched and tempered steel cylinders and tubes with tensile strength greater than or equal to 1100 MPa, Third edition, 2019-08; into §§ 178.71; 178.75.

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

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

(38) ISO 9809-3:2019(E), Gas cylinders—Design, construction and testing of refillable seamless steel gas cylinders and tubes—Part 3: Normalized steel cylinders and tubes, Third edition, 2019-08; into §§ 178.71; 178.75

(39) ISO 9809-4:2014(E), Gas cylinders—Refillable seamless steel gas cylinders—Design, construction, and testing—Part 4: Stainless steel cylinders with an Rm value of less than 1 100 MPa, First edition, 2014-07; into §§ 178.71; 178.75.

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

(41) ISO 10156:2017(E), Gas cylinders—Gases and gas mixtures—Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets, Fourth edition, 2017-07; into § 173.115.

(42) ISO 10297:1999(E), Gas cylinders—Refillable gas cylinder valves—Specification and type testing, First edition, 1995-05; into §§ 173.301b; 178.71.

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

(44) ISO 10297:2014(E), Gas cylinders—Cylinder valves—Specification and type testing, Third edition, 2014-07; into §§ 173.301b; 178.71.

(45) ISO 10297:2014/Amd 1:2017(E), Gas cylinders—Cylinder valves—Specification and type testing—Amendment 1: Pressure drums and tubes, Third edition, 2017-03; into §§ 173.301b; 178.71.

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

(47) ISO 10462:2013(E), Gas cylinders—Acetylene cylinders—Periodic inspection and maintenance, Third edition, 2013-12-15; into § 180.207.

(48) ISO 10462:2013/Amd 1:2019(E), "Gas cylinders—Acetylene cylinders—Periodic inspection and maintenance, Third edition, 2013-12-15, Amendment 1, 2019-06; into § 180.207.

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

(50) ISO 11114-1:2012(E), Gas cylinders—Compatibility of cylinder and valve materials with gas contents—Part 1: Metallic materials, Second edition, 2012-03; into §§ 172.102; 173.301b; 178.71.

(51) ISO 11114-1:2012/Amd 1:2017(E), Gas cylinders—Compatibility of cylinder and valve materials with gas contents—Part 1: Metallic materials—Amendment 1, Second edition, 2017-01; into §§ 172.102, 173.301b, 178.71.

(52) ISO 11114-2:2013(E), Gas cylinders—Compatibility of cylinder and valve materials with gas contents—Part 2: Non-metallic materials, Second edition, 2013-04; into §§ 173.301b; 178.71.

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

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

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

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

(58) ISO 11118:2015(E), Gas cylinders—Non-refillable metallic gas cylinders—Specification and test methods, Second edition, 2015-09; into §§ 173.301b; 178.71.

(59) ISO 11118:2015/Amd 1:2019(E), Gas cylinders—Non-refillable metallic gas cylinders—Specification and test methods, Second edition, 2015-09-15—Amendment 1, 2019-10; into §§ 173.301b; 178.71.

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

(61) ISO 11119-1:2012(E), Gas cylinders—Refillable composite gas cylinders and tubes—Design, construction, and testing—Part 1: Hoop wrapped fibre reinforced composite gas cylinders and tubes up to 450 L, Second edition, 2012-08; into §§ 178.71; 178.75.

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

(63) ISO 11119-2:2012(E), Gas cylinders—Refillable composite gas cylinders and tubes—Design, construction, and testing—Part 2: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with load-sharing metal liners, Second edition, 2012-07; into §§ 178.71; 178.75.

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

(66) ISO 11119-3:2013(E), Gas cylinders—Refillable composite gas cylinders and tubes—Design, construction and testing—Part 3: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with non-load-sharing metallic or non-metallic liners, Second edition, 2013-04; into §§ 178.71; 178.75.

(67) ISO 11119-4:2016(E), Gas cylinders—Refillable composite gas cylinders—Design, construction, and testing—Part 4: Fully wrapped fibre reinforced composite gas cylinders up to 150 l with load-sharing welded metallic liners, First edition, 2016-02; into § 178.71; 178.75.

(68) ISO 11120(E), Gas cylinders—Refillable seamless steel tubes of water capacity between 150 l and 3000 l—Design, construction, and testing, First Edition, 1999-03; into §§ 178.71; 178.75.

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(74) ISO 11623:2015(E), Gas cylinders—Composite construction—Periodic inspection and testing, Second edition, 2015-12; into § 180.207.

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

(77) ISO 14246:2014(E), Gas cylinders—Cylinder valves—Manufacturing tests and examination, Second Edition, 2014-06; into § 178.71.

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(82) ISO 17871:2015(E), Gas cylinders—Quick-release cylinder valves—Specification and type testing, First edition, 2015-08; into § 173.301b.

(83) ISO 17871:2020(E), Gas cylinders—Quick-release cylinder valves—Specification and type testing, Second edition, 2020-07; into § 173.301b.

(84) ISO 17879:2017(E), Gas cylinders—Self-closing cylinder valves—Specification and type testing, First edition, 2017-07; into §§ 173.301b; 178.71.

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

(86) ISO 20475:2018(E), Gas cylinders—Cylinder bundles—Periodic inspection and testing, First edition, 2018-02; into § 180.207.

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

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(89) ISO 21172-1:2015/Amd 1:2018(E), Gas cylinders—Welded steel pressure drums up to 3000 litres capacity for the transport of gases—Design and construction—Part 1: Capacities up to 1000 litres, First edition, 2015-04-01, Amendment 1,2018-11; into § 178.71.

(90) ISO 22434:2006(E), Transportable gas cylinders—Inspection and maintenance of cylinder valves, First edition, 2006-09; into § 180.207.

(91) ISO 23088:2020, Gas cylinders—Periodic inspection and testing of welded steel pressure drums—Capacities up to 1000 l, First edition, 2020-02; into § 180.207.

(92) ISO/TR 11364:2012(E), Gas cylinders—Compilation of national and international valve stem/gas cylinder neck threads and their identification and marking system, First edition, 2012-12; into § 178.71.

(x) ***National Board of Boiler and Pressure Vessel Inspectors,*** 1055 Crupper Avenue, Columbus, Ohio 43229.

(1) NB-23, National Board Inspection Code, A Manual for Boiler and Pressure Vessel Inspectors, 1992 Edition, into § 180.413.

(2) [Reserved]

(y) ***National Fire Protection Association,*** 1 Batterymarch Park, Quincy, MA, 02169-7471 1-617-770-3000, *http://www.nfpa.org*.

(1) NFPA 58-Liquefied Petroleum Gas Code, 2001 Edition, into §§ 173.5, 173.315, 173.301(a)(11).

(2) NFPA 498-Standards for Safe Havens and Interchange Lots for Vehicles Transporting Explosives, 2010 Edition, into § 177.835.

(z) ***National Institute of Standards and Technology,*** Department of Commerce, 5285 Port Royal Road, Springfield, VA 22151.

(1) USDC, NBS Handbook H-28 (1957), 1957 Handbook of Screw-Thread Standards for Federal Services, December 1966 Edition, into §§ 179.2; 178.45; 178.46.

(2) [Reserved]

(aa) ***Organization for Economic Cooperation and Development (OECD),*** OECD Publications and Information Center, 2001 L Street NW, Suite 700, Washington, DC 20036; (+33 1 45 24 82 00, *https://www.oecd.org/*).

(1) Test No. 404: Acute Dermal Irritation/Corrosion, OECD Guidelines for the Testing of Chemicals, adopted 28 July 2015, into § 173.137.

(2) Test No. 430: In Vitro Skin Corrosion: Transcutaneous Electrical Resistance Test (TER), OECD Guidelines for the Testing of Chemicals, adopted 28 July 2015, into § 173.137.

(3) Test No. 439: *In Vitro* Skin Irritation: Reconstructed Human Epidermis (RHE) Test Method, OECD Guidelines for the Testing of Chemicals, 29 July 2015; into § 173.137.

(4) Test No. 435: In Vitro Membrane Barrier Test Method for Skin Corrosion, OECD Guidelines for the Testing of Chemicals, adopted 28 July 2015, into § 173.137.

(bb) ***Transport Canada,*** Transport Dangerous Goods. Mailstop: ASD 330 Sparks Street, Ottawa, Ontario, Canada K1A 0N5, 416-973-1868, *http://www.tc.gc.ca*.

(1) Transportation of Dangerous Goods Regulations (Transport Canada TDG Regulations), into §§ 107.801; 107.805; 171.12; 171.22; 171.23; 172.401; 172.407; 172.502; 172.519; 172.602; 173.31; 173.32; 173.33; 173.301; 180.205; 180.211; 180.212; 180.413.

(i) SOR 2001-286, including Clear Language Amendments, August 2001.

(ii) SOR/2002-306 August 8, 2002.

(iii) SOR/2003-273 July 24, 2003

(iv) SOR/2003-400 December 3, 2003

(v) SOR/2005-216 July 13, 2005

(vi) SOR/2005-279 September 21, 2005

(vii) SOR/2008-34 February 7, 2008

(viii) SOR/2007-179 July 31, 2007

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

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

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

(xii) SOR/2012-245 December 5, 2012.

(xiii) SOR/2014-152 July 2, 2014.

(xiv) SOR/2014-159 July 2, 2014.

(xv) SOR/2014-159 Erratum July 16, 2014.

(xvi) SOR/2014-152 Erratum August 27, 2014.

(xvii) SOR/2014-306 December 31, 2014.

(xviii) SOR/2014-306 Erratum January 28, 2015.

(xix) SOR/2015-100 May 20, 2015.

(xx) SOR/2016-95 June 1, 2016;

(xxi) SOR/2017-137 July 12, 2017.

(xxii) SOR/2017-253 December 13, 2017.

(2) Containers for Transport of Dangerous Goods by Rail, TP 14877E, 12/2013, into § 171.12.

(cc) ***Truck Trailer Manufacturers Association,*** 1020 Princess Street, Alexandria, Virginia 22314.

(1) TTMA RP No. 61-98, Performance of manhole and/or Fill Opening Assemblies on MC 306, DOT 406, Non-ASME MC 312 and Non-ASME DOT 412 Cargo Tanks, June 1, 1998, into § 180.405.

(2) TTMA RP No. 81-97, Performance of Spring Loaded Pressure Relief Valves on MC 306, MC 307, MC 312, DOT 406, DOT 407, and DOT 412 Tanks, July 1, 1997 Edition, into §§ 178.345-10; 178.346-3.

(3) TTMA TB No. 107, Procedure for Testing In-Service Unmarked and/or Uncertified MC 306 and Non-ASME MC 312 Type Cargo Tank Manhole Covers, June 1, 1998 Edition, into § 180.405.

(dd) ***United Nations,*** Bookshop, GA-1B-103, New York, NY 10017, 1-212-963-7680, *https://shop.un.org* or *bookshop@un.org*.

(1) UN Recommendations on the Transport of Dangerous Goods, Model Regulations (UN Recommendations), 22nd revised edition, (2021); into §§ 171.8; 171.12; 172.202; 172.401; 172.407; 172.502; 172.519; 173.22; 173.24; 173.24b; 173.40; 173.56; 173.192; 173.302b; 173.304b; 178.75; 178.274 as follows:

(i) Volume I, ST/SG/AC.10/1/Rev.22 (Vol. I).

(ii) Volume II, ST/SG/AC.10/1/Rev.22 (Vol. II).

(2) Manual of Tests and Criteria; into §§ 171.24, 172.102; 173.21; 173.56; 173.57; 173.58; 173.60; 173.115; 173.124; 173.125; 173.127; 173.128; 173.137; 173.185; 173.220; 173.221; 173.224; 173.225; 173.232; part 173, appendix H; 175.10; 176.905; 178.274 as follows:

(i) Seventh revised edition (2019).

(ii) Seventh Revised Edition, Amendment 1 (2021).

(3) Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 9th Revised Edition, ST/SG/AC.10/30/Rev.9 (2021); into § 172.401.

(4) Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), copyright 2020; into §§ 171.8; 171.23 as follows:

(i) Volume I, ECE/TRANS/300 (Vol. I).

(ii) Volume II, ECE/TRANS/300 (Vol. II).

(iii) Corrigendum, ECE/TRANS/300 (Corr. 1).

(5) UN/SCETDG/55/INF.27, United Nations' Recommendations on Test Series 8: Applicability of Test Series 8(d), June 14, 2019; into § 172.102(c)(1), special provision 148.

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Source and name of material	49 CFR reference
American Biological Safety Association 1202 Allanson Road, Mundelein, IL 60060:	
Risk Group Classification for Infectious Agents, 1998	173.134.
American Institute of Chemical Engineers (AIChE), 3 Park Avenue New York, NY 10016-5991:	
Process Safety Progress Journal, Vol. 21, No. 2, Example of a Test Method for Venting Sizing: OPPSD/SPI Methodology	Note to § 173.225(h)(3)(vi).
American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428 (Noncurrent ASTM Standards are available from: Engineering Societies Library, 354 East 47th Street, New York, NY 10017):	
ASTM E 380-89 Standards for Metric Practice	171.10
Association of American Railroads, American Railroads Building, 50 F Street, NW., Washington, DC 20001:	
AAR Catalog Nos. SE60CHT; SE60CC; SE60CHTE; SE60CE; SE60DC; SE60DE	179.14
AAR Catalog Nos. SE67CC; SE67CE; SE67BHT; SE67BC; SE67BHTE; SE67BE	179.14
AAR Catalog Nos. SE68BHT; SE68BC; SE68BHTE; SE68BE	179.14
AAR Catalog Nos. SE69AHTE; SE69AE	179.14
AAR Catalog Nos. SF70CHT; SF70CC; SF70CHTE; SF70CE	179.14
AAR Catalog Nos. SF73AC; SF73AE; SF73AHT; SF73AHTE	179.14
AAR Catalog Nos. SF79CHT; SF79CC; SF79CHTE; SF79CE	179.14

Source and name of material	49 CFR reference
Bureau of Explosives, Hazardous Materials Systems (BOE), Association of American Railroads, American Railroads Building, 50 F Street NW., Washington, DC 20001:	
Fetterley's Formula (The Determination of the Relief Dimensions for Safety Valves on Containers in which Liquefied gas is charged and when the exterior surface of the container is exposed to a temperature of 1,200 °F.)	173.315
Intermodal Loading Guide for Products in Closed Trailers and Containers, issued June 2001	174.55; 174.101; 174.112; 174.115.
Pamphlet 6, Illustrating Methods for Loading and Bracing Carload and Less-Than-Carload Shipments of Explosives and Other Dangerous Articles, 1962	174.55; 174.101; 174.112; 174.115; 174.290.
Pamphlet 6A (includes appendix No. 1, October 1944 and appendix 2, December 1945), Illustrating Methods for Loading and Bracing Carload and Less-Than-Carload Shipments of Loaded Projectiles, Loaded Bombs, etc., 1943	174.101; 174.290
Pamphlet 6C, Illustrating Methods for Loading and Bracing Trailers and Less-Than-Trailer Shipments of Explosives and Other Dangerous Articles Via Trailer-on-Flatcar (TOFC) or Container-on-Flatcar (COFC), 1985	174.55; 174.63; 174.101; 174.112; 174.115
Emergency Handling of Hazardous Materials in Surface Transportation, 1989	171.7
Centers for Disease Control and Prevention 1600 Clifton Road, Atlanta, GA 30333:	
Biosafety in Microbiological and Biomedical Laboratories, Fourth Edition, April 1999	173.134
Department of Commerce, 1401 Constitution Ave. NW, Washington, DC 20230:	
Federal Standard H-28, Screw-Thread Standards for Federal Services	180.212
National Institutes of Health Bethesda, MD 20892:	
NIH Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines), January 2001, Appendix B	173.134
Pantone Incorporated 590 Commerce Boulevard, Carlstadt, New Jersey 07072-3098:	
Pantone ®Formula guide coated/uncoated, Second Edition 2004	172.407, 172.519
Society of Plastics Industries, Inc., Organic Peroxide Producers Safety Division, 1275 K Street NW., Suite 400, Washington, DC 20005:	
Self Accelerating Decomposition Temperature Test, 1972	173.21
The Sulphur Institute, 1020 19th St. NW., Suite 520, Washington, DC 20036.	
Molten Sulphur Rail Tank Car Guidance document, November 2010	172.102
Truck Trailer Manufacturers Association, 1020 Princess Street, Alexandria, Virginia 22314, telephone (703) 549-3010, *http://www.ttmanet.org:*	
TTMA RP No. 96-01, TTMA RP No. 96-01, Structural Integrity of DOT 406, DOT	178.345-3

Source and name of material	49 CFR reference
407, and DOT 412 Cylindrical Cargo Tanks, January 2001 Edition	

[78 FR 1027, Jan. 7, 2013, as amended at 78 FR 15321, Mar. 11, 2013; 78 FR 65468, Oct. 31, 2013; 79 FR 15043, Mar. 18, 2014; 79 FR 40609, July 11, 2014; 80 FR 1114, Jan. 8, 2015; 80 FR 26746, May 8, 2015; 80 FR 79449, Dec. 21, 2015; 81 FR 25617, Apr. 29, 2016; 81 FR 35513, June 2, 2016; 82 FR 15833, Mar. 30, 2017; 83 FR 55806, Nov. 7, 2018; 84 FR 6952, Feb. 28, 2019; 85 FR 27852, May 11, 2020; 85 FR 75704, Nov. 25, 2020; 85 FR 78029, Dec. 3, 2020; 85 FR 85415, Dec. 28, 2020; 87 FR 44980, July 26, 2022; 87 FR 79765, Dec. 27, 2022; 89 FR 15662, Mar. 4, 2024; 89 FR 25469, Apr. 10, 2024]

§ 171.8 Definitions and abbreviations.

In this subchapter,

Administrator means the Administrator, Pipeline and Hazardous Materials Safety Administration.

Adsorbed gas. See § 173.115 of this subchapter.

Aerosol means an article consisting of any non-refillable receptacle containing a gas compressed, liquefied or dissolved under pressure, the sole purpose of which is to expel a nonpoisonous (other than a Division 6.1 Packing Group III material) liquid, paste, or powder and fitted with a self-closing release device allowing the contents to be ejected by the gas.

Agricultural product means a hazardous material, other than a hazardous waste, whose end use directly supports the production of an agricultural commodity including, but not limited to a fertilizer, pesticide, soil amendment or fuel. An *agricultural product* is limited to a material in Class 3, 8 or 9, Division 2.1, 2.2, 5.1, or 6.1.

Aircraft battery means a battery designed in accordance with a recognized aircraft battery design standard (e.g. FAA technical standard order) that is capable of meeting all aircraft airworthiness requirements and operating regulations.

Approval means a written authorization, including a competent authority approval, issued by the Associate Administrator, the Associate Administrator's designee, or as otherwise prescribed in the HMR, to perform a function for which prior authorization by the Associate Administrator is required under subchapter C of this chapter (49 CFR parts 171 through 180).

Approved means approval issued or recognized by the Department unless otherwise specifically indicated in this subchapter.

Asphyxiant gas means a gas which dilutes or replaces oxygen normally in the atmosphere.

Associate Administrator means the Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration.

Atmospheric gases means air, nitrogen, oxygen, argon, krypton, neon and xenon.

Authorized Inspection Agency means:

(1) A jurisdiction which has adopted and administers one or more sections of the ASME Boiler and Pressure Vessel Code as a legal requirement and has a representative serving as a member of the ASME Conference Committee; or

(2) an insurance company which has been licensed or registered by the appropriate authority of a State of the United States or a Province of Canada to underwrite boiler and pressure vessel insurance in such State or Province.

Authorized Inspector means an Inspector who is currently commissioned by the National Board of Boiler and Pressure Vessel Inspectors and employed as an Inspector by an Authorized Inspection Agency.

Bag means a flexible packaging made of paper, plastic film, textiles, woven material or other similar materials.

Bar means 1 BAR = 100 kPa (14.5 psi).

Barge means a non-selfpropelled vessel.

Biological product. See § 173.134 of this subchapter.

Biological substances, Category B. See § 173.134 of this subchapter.

Bottle means an inner packaging having a neck of relatively smaller cross section than the body and an opening capable of holding a closure for retention of the contents.

Bottom shell means that portion of a tank car tank surface, excluding the head ends of the tank car tank, that lies within two feet, measured circumferentially, of the bottom longitudinal center line of the tank car tank.

Box means a packaging with complete rectangular or polygonal faces, made of metal, wood, plywood, reconstituted wood, fiberboard, plastic, or other suitable material. Holes appropriate to the size and use of the packaging, for purposes such as ease of handling or opening, or to meet classification requirements, are permitted as long as they do not compromise the integrity of the packaging during transportation, and are not otherwise prohibited in this subchapter.

Break-bulk means packages of hazardous materials that are handled individually, palletized, or unitized for purposes of transportation as opposed to bulk and containerized freight.

Btu means British thermal unit.

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. A Large Packaging in which hazardous materials are loaded with an intermediate form of containment, such as one or more articles or inner packagings, is also a bulk packaging. Additionally, a bulk packaging 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) and 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.

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

Bureau of Explosives means the Bureau of Explosives (B of E) of the Association of American Railroads.

C means Celsius or Centigrade.

Captain of the Port (COTP) means the officer of the Coast Guard, under the command of a District Commander, so designated by the Commandant for the purpose of giving immediate direction to Coast Guard law enforcement activities within an assigned area. As used in this subchapter, the term *Captain of the Port* includes an authorized representative of the Captain of the Port.

Carfloat means a vessel that operates on a short run on an irregular basis and serves one or more points in a port area as an extension of a rail line or highway over water, and does not operate in ocean, coastwise, or ferry service.

Cargo aircraft only means an aircraft that is used to transport cargo and is not engaged in carrying passengers. For purposes of this subchapter, the terms *cargo aircraft only, cargo-only aircraft* and *cargo aircraft* have the same meaning.

Cargo tank means a bulk packaging that:

(1) Is a tank intended primarily for the carriage of liquids or gases and includes appurtenances, reinforcements, fittings, and closures (for the definition of a tank, *see* 49 CFR 178.320, 178.337-1, or 178.338-1, as applicable);

(2) Is permanently attached to or forms a part of a motor vehicle, or is not permanently attached to a motor vehicle but which, by reason of its size, construction or attachment to a motor vehicle is loaded or unloaded without being removed from the motor vehicle; and

(3) Is not fabricated under a specification for cylinders, intermediate bulk containers, multi-unit tank car tanks, portable tanks, or tank cars.

Cargo tank motor vehicle means a motor vehicle with one or more cargo tanks permanently attached to or forming an integral part of the motor vehicle.

Cargo vessel means:

(1) Any vessel other than a passenger vessel; and

(2) Any ferry being operated under authority of a change of character certificate issued by a Coast Guard Officer-in-Charge, Marine Inspection.

Carrier means a person who transports passengers or property in commerce by rail car, aircraft, motor vehicle, or vessel.

CC means closed-cup.

Character of vessel means the type of service in which the vessel is engaged at the time of carriage of a hazardous material.

Class means hazard class. See *hazard class.*

Class 1. See § 173.50 of this subchapter.

Class 2. See § 173.115 of this subchapter.

Class 3. See § 173.120 of this subchapter.

Class 4. See § 173.124 of this subchapter.

Class 5. See § 173.128 of this subchapter.

Class 6. See § 173.132 of this subchapter.

Class 7. See § 173.403 of this subchapter.

Class 8. See § 173.136 of this subchapter.

Class 9. See § 173.140 of this subchapter.

Closure means a device which closes an opening in a receptacle.

COFC means container-on-flat-car.

Combination packaging means a combination of packaging, for transport purposes, consisting of one or more inner packagings secured in a non-bulk outer packaging. It does not include a composite packaging.

Combustible liquid. See § 173.120 of this subchapter.

Commerce means trade or transportation in the jurisdiction of the United States within a single state; between a place in a state and a place outside of the state; that affects trade or transportation between a place in a state and place outside of the state; or on a United States-registered aircraft.

Compatibility group letter means a designated alphabetical letter used to categorize different types of explosive substances and articles for purposes of stowage and segregation. See § 173.52 of this subchapter.

Competent Authority means a national agency responsible under its national law for the control or regulation of a particular aspect of the transportation of hazardous materials (dangerous goods). The term *Appropriate Authority,* as used in the ICAO Technical Instructions (IBR, see § 171.7), has the same meaning as *Competent Authority.* For purposes of this subchapter, the Associate Administrator is the Competent Authority for the United States.

Composite packaging means a packaging consisting of an outer packaging and an inner receptacle, so constructed that the inner receptacle and the outer packaging form an integral packaging. Once assembled it remains thereafter an integrated single unit; it is filled, stored, shipped and emptied as such.

Compressed gas. See § 173.115 of this subchapter.

Consignee means the person or place shown on a shipping document, package marking, or other media as the location to which a carrier is directed to transport a hazardous material.

Consumer commodity means a material that is packaged and distributed in a form intended or suitable for sale through retail sales agencies or instrumentalities for consumption by individuals for purposes of personal care or household use. This term also includes drugs and medicines.

Container ship means a cargo vessel designed and constructed to transport, within specifically designed cells, portable tanks and freight containers which are lifted on and off with their contents intact.

Corrosive material. See § 173.136 of this subchapter.

Crate means an outer packaging with incomplete surfaces.

Crewmember means a person assigned to perform duty in an aircraft during flight time.

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

Cultures and stocks. See § 173.134 of this subchapter.

Cylinder means a pressure vessel designed for pressures higher than 40 psia and having a circular cross section. It does not include a portable tank, multi-unit tank car tank, cargo tank, or tank car.

Dangerous when wet material. See § 173.124 of this subchapter.

Design Certifying Engineer means a person registered with the Department in accordance with subpart F of part 107 of this chapter who has the knowledge and ability to perform stress analysis of pressure vessels and otherwise determine whether a cargo tank design and construction meets the applicable DOT specification. A *Design Certifying Engineer* meets the knowledge and ability requirements of this section by meeting any one of the following requirements:

(1) Has an engineering degree and one year of work experience in cargo tank structural or mechanical design;

(2) Is currently registered as a professional engineer by appropriate authority of a state of the United States or a province of Canada; or

(3) Has at least three years' experience in performing the duties of a Design Certifying Engineer prior to September 1, 1991.

Design life, for composite cylinders and tubes, means the maximum life (in number of years) to which the cylinder or tube is designed and approved in accordance with the applicable standard.

Designated facility means a hazardous waste treatment, storage, or disposal facility that has been designated on the manifest by the generator.

Display pack means a package intended to be placed at retail locations which provide direct customer access to consumer commodities contained within the package when all or part of the outer fiberboard packaging is removed.

District Commander means the District Commander of the Coast Guard, or his authorized representative, who has jurisdiction in the particular geographical area.

Division means a subdivision of a hazard class.

DOD means the U.S. Department of Defense.

Domestic transportation means transportation between places within the United States other than through a foreign country.

DOT or *Department* means U.S. Department of Transportation.

Drum means a flat-ended or convex-ended cylindrical packaging made of metal, fiberboard, plastic, plywood, or other suitable materials. This definition also includes packagings of other shapes made of metal or plastic (e.g., round taper-necked packagings or pail-shaped packagings) but does not include cylinders, jerricans, wooden barrels or bulk packagings.

Electronic data interchange (EDI) means the computer-to-computer exchange of business data in standard formats. In EDI, information is organized according to a specific format (electronic transmission protocol) agreed upon by the sender and receiver of this information, and transmitted through a computer transaction that requires no human intervention or retyping at either end of the transmission.

Elevated temperature material means a material which, when offered for transportation or transported in a bulk packaging:

(1) Is in a liquid phase and at a temperature at or above 100 °C (212 °F);

(2) Is in a liquid phase with a flash point at or above 38 °C (100 °F) that is intentionally heated and offered for transportation or transported at or above its flash point; or

(3) Is in a solid phase and at a temperature at or above 240 °C (464 °F).

Engine means a locomotive propelled by any form of energy and used by a railroad.

EPA means U.S. Environmental Protection Agency.

Etiologic agent. See § 173.134 of this subchapter.

EX number means a number preceded by the prefix "EX", assigned by the Associate Administrator, to an item that has been evaluated under the provisions of § 173.56 of this subchapter.

Explosive. See § 173.50 of this subchapter.

F means degree Fahrenheit.

Farmer means a person engaged in the production or raising of crops, poultry, or livestock.

FC number means a number preceded by the prefix "FC", assigned by a Fireworks Certification Agency to a Division 1.4G Consumer firework device that has been certified under the provisions of § 173.65 of this subchapter.

Federal hazardous material transportation law means 49 U.S.C. 5101 *et seq.*

Ferry vessel means a vessel which is limited in its use to the carriage of deck passengers or vehicles or both, operates on a short run on a frequent schedule between two points over the most direct water route, other than in ocean or coastwise service, and is offered as a public service of a type normally attributed to a bridge or tunnel.

Filling density has the following meanings:

(1) For compressed gases in cylinders, see § 173.304a(a)(2) table note 1.

(2) For compressed gases in tank cars, see § 173.314(c) table note 1.

(3) For compressed gases in cargo tanks and portable tanks, see § 173.315(a) table note 1.

(4) For cryogenic liquids in cylinders, except hydrogen, see § 173.316(c)(1).

(5) For hydrogen, cryogenic liquid in cylinders, see § 173.316(c)(3) table note 1.

(6) For cryogenic liquids in cargo tanks, see § 173.318(f)(1).

(7) For cryogenic liquids in tank cars, see § 173.319(d)(1).

Flammable gas. See § 173.115 of this subchapter.

Flammable liquid. See § 173.120 of this subchapter.

Flammable solid. See § 173.124 of this subchapter.

Flexible bulk container means a flexible container with a capacity not exceeding 15 cubic meters and includes liners and attached handling devices and service equipment.

Flash point. See § 173.120 of this subchapter.

Freight container means a reusable container having a volume of 64 cubic feet or more, designed and constructed to permit being lifted with its contents intact and intended primarily for containment of packages (in unit form) during transportation.

Fuel cell means an electrochemical device that converts the energy of the chemical reaction between a fuel, such as hydrogen or hydrogen rich gases, alcohols, or hydrocarbons, and an oxidant, such as air or oxygen, to direct current (d.c.) power, heat, and other reaction products.

Fuel cell cartridge or fuel cartridge means an article that stores fuel for discharge into the fuel cell through a valve(s) that controls the discharge of fuel into the fuel cell.

Fuel cell system means a fuel cell with an installed fuel cell cartridge together with wiring, valves, and other attachments that connect the fuel cell or cartridge to the device it powers. The fuel cell or cartridge may be so constructed that it forms an integral part of the device or may be removed and connected manually to the device.

Fuel tank means a tank other than a cargo tank, used to transport flammable or combustible liquid, or compressed gas for the purpose of supplying fuel for propulsion of the transport vehicle to which it is attached, or for the operation of other equipment on the transport vehicle.

Fumigated lading. See §§ 172.302(g) and 173.9.

Gas means a material which has a vapor pressure greater than 300 kPa (43.5 psia) at 50 °C (122 °F) or is completely gaseous at 20 °C (68 °F) at a standard pressure of 101.3 kPa (14.7 psia).

Gross weight or *Gross mass* means the weight of a packaging plus the weight of its contents.

Hazard class means the category of hazard assigned to a hazardous material under the definitional criteria of part 173 of this subchapter and the provisions of the § 172.101 table. A material may meet the defining criteria for more than one hazard class but is assigned to only one hazard class.

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).

Hazardous material means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of this subchapter.

Hazardous substance for the purposes of this subchapter, means a material, including its mixtures and solutions, that—

(1) Is listed in the appendix A to § 172.101 of this subchapter;

(2) Is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in the appendix A to § 172.101 of this subchapter; and

(3) When in a mixture or solution—

(i) For radionuclides, conforms to paragraph 7 of the appendix A to § 172.101.

(ii) For other than radionuclides, is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material, as shown in the following table:

RQ pounds (kilograms)	Concentration by weight	
	Percent	PPM
5000 (2270)	10	100,000
1000 (454)	2	20,000
100 (45.4)	0.2	2,000
10 (4.54)	0.02	200
1 (0.454)	0.002	20

The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance in appendix A to § 172.101 of this subchapter, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

Hazardous waste, for the purposes of this chapter, means any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR part 262.

Hazmat means a hazardous material.

Hazmat employee means:

(1) A person who is:

(i) Employed on a full-time, part time, or temporary basis by a hazmat employer and who in the course of such full time, part time or temporary employment directly affects hazardous materials transportation safety;

(ii) Self-employed (including an owner-operator of a motor vehicle, vessel, or aircraft) transporting hazardous materials in commerce who in the course of such self-employment directly affects hazardous materials transportation safety;

(iii) A railroad signalman; or

(iv) A railroad maintenance-of-way employee.

(2) This term includes an individual, employed on a full time, part time, or temporary basis by a hazmat employer, or who is self-employed, who during the course of employment:

(i) Loads, unloads, or handles hazardous materials;

(ii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs, or tests a package, container or packaging component that is represented, marked, certified, or sold as qualified for use in transporting hazardous material in commerce.

(iii) Prepares hazardous materials for transportation;

(iv) Is responsible for safety of transporting hazardous materials;

(v) Operates a vehicle used to transport hazardous materials.

Hazmat employer means:

(1) A person who employs or uses at least one hazmat employee on a full-time, part time, or temporary basis; and who:

(i) Transports hazardous materials in commerce;

(ii) Causes hazardous materials to be transported in commerce; or

(iii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs or tests a package, container, or packaging component that is represented, marked, certified, or sold by that person as qualified for use in transporting hazardous materials in commerce;

(2) A person who is self-employed (including an owner-operator of a motor vehicle, vessel, or aircraft) transporting materials in commerce; and who:

(i) Transports hazardous materials in commerce;

(ii) Causes hazardous materials to be transported in commerce; or

(iii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs or tests a package, container, or packaging component that is represented, marked, certified, or sold by that person as qualified for use in transporting hazardous materials in commerce; or

(3) A department, agency, or instrumentality of the United States Government, or an authority of a State, political subdivision of a State, or an Indian tribe; and who:

(i) Transports hazardous materials in commerce;

(ii) Causes hazardous materials to be transported in commerce; or

(iii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs or tests a package, container, or packaging component that is represented, marked, certified, or sold by that person as qualified for use in transporting hazardous materials in commerce.

Hermetically sealed means closed by fusion, gasketing, crimping, or equivalent means so that no gas or vapor can enter or escape.

High-hazard flammable train (HHFT) means a single train transporting 20 or more loaded tank cars of a Class 3 flammable liquid in a continuous block or a single train carrying 35 or more loaded tank cars of a Class 3 flammable liquid throughout the train consist.

High-hazard flammable unit train (HHFUT) means a single train transporting 70 or more loaded tank cars containing Class 3 flammable liquid.

Household waste means any solid waste (including garbage, trash, and sanitary waste from septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas). This term is not applicable to consolidated shipments of household hazardous materials transported from collection centers. A collection center is a central location where household waste is collected.

HMR means the Hazardous Materials Regulations, parts 171 through 180 of this chapter.

IAEA means International Atomic Energy Agency.

IATA means International Air Transport Association.

ICAO means International Civil Aviation Organization.

IMO means International Maritime Organization.

Incorporated by reference or *IBR* means a publication or a portion of a publication that is made a part of the regulations of this subchapter. See § 171.7.

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

Inner packaging means a packaging for which an outer packaging is required for transport. It does not include the inner receptacle of a composite packaging.

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.

Intermediate bulk container or *IBC* means a rigid or flexible portable packaging, other than a cylinder or portable tank, which is designed for mechanical handling. Standards for IBCs manufactured in the United States are set forth in subparts N and O of part 178 of this subchapter.

Intermediate packaging means a packaging which encloses an inner packaging or article and is itself enclosed in an outer packaging.

Intermodal container means a freight container designed and constructed to permit it to be used interchangeably in two or more modes of transport.

Intermodal portable tank or *IM portable tank* means a specific class of portable tanks designed primarily for international intermodal use.

International transportation means transportation—

(1) Between any place in the United States and any place in a foreign country;

(2) Between places in the United States through a foreign country; or

(3) Between places in one or more foreign countries through the United States.

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

Jerrican means a metal or plastic packaging of rectangular or polygonal cross-section.

Large packaging means a packaging that—

(1) Consists of an outer packaging that contains articles or inner packagings;

(2) Is designated for mechanical handling;

(3) Exceeds 400 kg net mass or 450 liters (118.9 gallons) capacity;

(4) Has a volume of not more than 3 cubic meters (m^3) (see § 178.801(i) of this subchapter); and

(5) Conforms to the requirements for the construction, testing and marking of Large Packagings as specified in subparts P and Q of part 178 of this subchapter.

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

(1) Is designed for mechanical handling; and

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

Limited quantity, when specified as such in a section applicable to a particular material, means the maximum amount of a hazardous material for which there is a specific labeling or packaging exception.

Lighter means a mechanically operated flame-producing device employing an ignition device and containing a Class 3 or a Division 2.1 material. For design, capacity, and filling density requirements for lighters containing a Division 2.1 material, see § 173.308.

Lighter refill means a pressurized container that does not contain an ignition device but does contain a release device and is intended for use as a replacement cartridge in a lighter or to refill a lighter with a Division 2.1 flammable gas fuel. For capacity limits, see § 173.306(h) of this subchapter.

Liquid means a material, other than an elevated temperature material, with a melting point or initial melting point of 20 °C (68 °F) or lower at a standard pressure of 101.3 kPa (14.7 psia). A viscous material for which a specific melting point cannot be determined must be subjected to the procedures specified in ASTM D 4359 (IBR, see § 171.7) or to the test for determining fluidity (penetrometer test) prescribed in section 2.3.4 of Annex A of the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) (IBR, see § 171.7).

Liquid phase means a material that meets the definition of liquid when evaluated at the higher of the temperature at which it is offered for transportation or at which it is transported, not at the 38 °C (100 °F) temperature specified in ASTM D 4359 (IBR, see § 171.7).

Lithium ion cell or battery means a rechargeable electrochemical cell or battery in which the positive and negative electrodes are both lithium compounds constructed with no metallic lithium in either electrode. A lithium ion polymer cell or battery that uses lithium ion chemistries, as described herein, is regulated as a lithium ion cell or battery.

Lithium metal cell or battery means an electrochemical cell or battery utilizing lithium metal or lithium alloys as the anode. The lithium content of a lithium metal or lithium alloy cell or battery is measured when the cell or battery is in an undischarged state. The lithium content of a lithium metal or lithium alloy battery is the sum of the grams of lithium content contained in the component cells of the battery.

Loading incidental to movement means loading by carrier personnel or in the presence of carrier personnel of packaged or containerized hazardous material onto a transport vehicle, aircraft, or vessel for the purpose of transporting it, including the loading, blocking and bracing a hazardous materials package in a freight container or transport vehicle, and segregating a hazardous materials package in a freight container or transport vehicle from incompatible cargo. For a bulk packaging, *loading incidental to movement* means filling the packaging with a hazardous material for the purpose of transporting it. *Loading incidental to movement* includes transloading.

Magazine vessel means a vessel used for the receiving, storing, or dispensing of explosives.

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

Marine pollutant, means a material which is listed in appendix B to § 172.101 of this subchapter (also see § 171.4) and, when in a solution or mixture of one or more marine pollutants, is packaged in a concentration which equals or exceeds:

(1) Ten percent by weight of the solution or mixture for materials listed in the appendix; or

(2) One percent by weight of the solution or mixture for materials that are identified as severe marine pollutants in the appendix.

Marking means a descriptive name, identification number, instructions, cautions, weight, specification, or UN marks, or combinations thereof, required by this subchapter on outer packagings of hazardous materials.

Material of trade means a hazardous material, other than a hazardous waste, that is carried on a motor vehicle—

(1) For the purpose of protecting the health and safety of the motor vehicle operator or passengers;

(2) For the purpose of supporting the operation or maintenance of a motor vehicle (including its auxiliary equipment); or

(3) By a private motor carrier (including vehicles operated by a rail carrier) in direct support of a principal business that is other than transportation by motor vehicle.

Material poisonous by inhalation or *Material toxic 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.

Maximum allowable working pressure or *MAWP:* For DOT specification cargo tanks used to transport liquid hazardous materials, *see* § 178.320(a) of this subchapter.

Maximum capacity means the maximum inner volume of receptacles or packagings.

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.

Mechanical displacement meter prover means a mechanical device used in the oilfield service industry consisting of a pipe assembly that is used to calibrate the accuracy and performance of meters that measure the quantities of a product being pumped or transferred at facilities such as drilling locations, refineries, tank farms, and loading racks.

Metered delivery service means a cargo tank unloading operation conducted at a metered flow rate of 378.5 L (100 gallons) per minute or less through an attached delivery hose with a nominal inside diameter of 3.175 cm ($1^{1}/_{4}$ inches) or less.

Metal hydride storage system means a single complete hydrogen storage system that includes a receptacle, metal hydride, pressure relief device, shut-off valve, service equipment and internal components used for the transportation of hydrogen only.

Miscellaneous hazardous material. See § 173.140 of this subchapter.

Mixture means a material composed of more than one chemical compound or element.

Mode means any of the following transportation methods; rail, highway, air, or water.

Motor vehicle includes a vehicle, machine, tractor, trailer, or semitrailer, or any combination thereof, propelled or drawn by mechanical power and used upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive, or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service.

Movement means the physical transfer of a hazardous material from one geographic location to another by rail car, aircraft, motor vehicle, or vessel.

Multiple-element gas container or MEGC means assemblies of UN cylinders, tubes, or bundles of cylinders interconnected by a manifold and assembled within a framework. The term includes all service equipment and structural equipment necessary for the transport of gases.

Name of contents means the proper shipping name as specified in § 172.101 of this subchapter.

Navigable waters means, for the purposes of this subchapter, waters of the United States, including the territorial seas.

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

Non-bulk packaging means a packaging which has:

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

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

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

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

Nonflammable gas. See § 173.115 of this subchapter.

N.O.S. means not otherwise specified.

N.O.S. description means a shipping description from the § 172.101 table which includes the abbreviation *n.o.s.*

NPT means an American Standard taper pipe thread conforming to the requirements of NBS Handbook H-28 (IBR, see § 171.7).

NRC (non-reusable container) means a packaging (container) whose reuse is restricted in accordance with the provisions of § 173.28 of this subchapter.

Occupied caboose means a rail car being used to transport non-passenger personnel.

Officer in Charge, Marine Inspection means a person from the civilian or military branch of the Coast Guard designated as such by the Commandant and who under the supervision and direction of the Coast Guard District Commander is in charge of a designated inspection zone for the performance of duties with respect to the enforcement and administration of title 52, Revised Statutes, acts amendatory thereof or supplemental thereto, rules and regulations thereunder, and the inspection required thereby.

Offshore supply vessel means a cargo vessel of less than 500 gross tons that regularly transports goods, supplies or equipment in support of exploration or production of offshore mineral or energy resources.

Open cryogenic receptacle means a transportable thermally insulated receptacle for refrigerated liquefied gases maintained at atmospheric pressure by continuous venting of the refrigerated gas.

Operator means a person who controls the use of an aircraft, vessel, or vehicle.

Organic peroxide. See § 173.128 of this subchapter.

ORM means other regulated material. See § 173.144 of this subchapter.

Outage or *ullage* means the amount by which a packaging falls short of being liquid full, usually expressed in percent by volume.

Outer packaging means the outermost enclosure of a composite or combination packaging together with any absorbent materials, cushioning and any other components necessary to contain and protect inner receptacles or inner packagings.

Overpack, except as provided in subpart K of part 178 of this subchapter, means an enclosure that is used by a single consignor to provide protection or convenience in handling of a package or to consolidate two or more packages. *Overpack* does not include a transport vehicle, freight container, or aircraft unit load device. Examples of overpacks are one or more packages:

(1) Placed or stacked onto a load board such as a pallet and secured by strapping, shrink wrapping, stretch wrapping, or other suitable means; or

(2) Placed in a protective outer packaging such as a box or crate.

Oxidizer. See § 173.127 of this subchapter.

Oxidizing gas means a gas that may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does. Specifically, this means a pure gas or gas mixture with an oxidizing power greater than 23.5% as determined by a method specified in ISO 10156: or 10156-2: (IBR, *see* § 171.7 of this subchapter) (*see also* § 173.115(k)).

Oxygen generator (chemical) means a device containing chemicals that upon activation release oxygen as a product of chemical reaction.

Package or *Outside Package* means a packaging plus its contents. For radioactive materials, see § 173.403 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.

Packing group means a grouping according to the degree of danger presented by hazardous materials. Packing Group I indicates great danger; Packing Group II, medium danger; Packing Group III, minor danger. See § 172.101(f) of this subchapter.

Passenger (With respect to vessels and for the purposes of part 176 only) means a person being carried on a vessel other than:

(1) The owner or his representative;

(2) The operator;

(3) A bona fide member of the crew engaged in the business of the vessel who has contributed no consideration for his carriage and who is paid for his services; or

(4) A guest who has not contributed any consideration directly or indirectly for his carriage.

Passenger-carrying aircraft means an aircraft that carries any person other than a crewmember, company employee, an authorized representative of the United States, or a person accompanying the shipment.

Passenger vessel means—

(1) A vessel subject to any of the requirements of the International Convention for the Safety of Life at Sea, 1974, which carries more than 12 passengers;

(2) A cargo vessel documented under the laws of the United States and not subject to that Convention, which carries more than 16 passengers;

(3) A cargo vessel of any foreign nation that extends reciprocal privileges and is not subject to that Convention and which carries more than 16 passengers; and

(4) A vessel engaged in a ferry operation and which carries passengers.

Person means an individual, corporation, company, association, firm, partnership, society, joint stock company; or a government, Indian Tribe, or authority of a government or Tribe, that offers a hazardous material for transportation in commerce, transports a hazardous material to support a commercial enterprise, or designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs, or tests a package, container, or packaging component that is represented, marked, certified, or sold as qualified for use in transporting hazardous material in commerce. This term does not include the United States Postal Service or, for purposes of 49 U.S.C. 5123 and 5124, a Department, agency, or instrumentality of the government.

Person who offers or *offeror* means:

(1) Any person who does either or both of the following:

(i) Performs, or is responsible for performing, any pre-transportation function required under this subchapter for transportation of the hazardous material in commerce.

(ii) Tenders or makes the hazardous material available to a carrier for transportation in commerce.

(2) A carrier is not an offeror when it performs a function required by this subchapter as a condition of acceptance of a hazardous material for transportation in commerce (*e.g.*, reviewing shipping papers, examining packages to ensure that they are in conformance with this subchapter, or preparing shipping documentation for its own use) or when it transfers a hazardous material to another carrier for continued transportation in commerce without performing a pre-transportation function.

PHMSA means the Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington, DC 20590.

Placarded car means a rail car which is placarded in accordance with the requirements of part 172 of this subchapter.

Poisonous gas. See § 173.115 of this subchapter.

Poisonous materials. See § 173.132 of this subchapter.

Portable tank means a bulk packaging (except a cylinder having a water capacity of 1000 pounds or less) designed primarily to be loaded onto, or on, or temporarily attached to a transport vehicle or ship and equipped with skids, mountings, or accessories to facilitate handling of the tank by mechanical means. It does not include a cargo tank, tank car, multi-unit tank car tank, or trailer carrying 3AX, 3AAX, or 3T cylinders.

Preferred route or *Preferred highway* is a highway for shipment of *highway route controlled quantities* of radioactive materials so designated by a State routing agency, and any Interstate System highway for which an alternative highway has not been designated by such State agency as provided by § 397.103 of this title.

Pre-transportation function means a function specified in the HMR that is required to assure the safe transportation of a hazardous material in commerce, including—

(1) Determining the hazard class of a hazardous material.

(2) Selecting a hazardous materials packaging.

(3) Filling a hazardous materials packaging, including a bulk packaging.

(4) Securing a closure on a filled or partially filled hazardous materials package or container or on a package or container containing a residue of a hazardous material.

(5) Marking a package to indicate that it contains a hazardous material.

(6) Labeling a package to indicate that it contains a hazardous material.

(7) Preparing a shipping paper.

(8) Providing and maintaining emergency response information.

(9) Reviewing a shipping paper to verify compliance with the HMR or international equivalents.

(10) For each person importing a hazardous material into the United States, providing the shipper with timely and complete information as to the HMR requirements that will apply to the transportation of the material within the United States.

(11) Certifying that a hazardous material is in proper condition for transportation in conformance with the requirements of the HMR.

(12) Loading, blocking, and bracing a hazardous materials package in a freight container or transport vehicle.

(13) Segregating a hazardous materials package in a freight container or transport vehicle from incompatible cargo.

(14) Selecting, providing, or affixing placards for a freight container or transport vehicle to indicate that it contains a hazardous material.

Primary hazard means the hazard class of a material as assigned in the § 172.101 table.

Private track or *Private siding* means:

(i) Track located outside of a carrier's right-of-way, yard, or terminals where the carrier does not own the rails, ties, roadbed, or right-of-way, or

(ii) Track leased by a railroad to a lessee, where the lease provides for, and actual practice entails, exclusive use of that trackage by the lessee and/or a general system railroad for purpose of moving only cars shipped to or by the lessee, and where the lessor otherwise exercises no control over or responsibility for the trackage or the cars on the trackage.

Proper shipping name means the name of the hazardous material shown in Roman print (not italics) in § 172.101 of this subchapter.

Psi means pounds per square inch.

Psia means pounds per square inch absolute.

Psig means pounds per square inch gauge.

Public vessel means a vessel owned by and being used in the public service of the United States. It does not include a vessel owned by the United States and engaged in a trade or commercial service or a vessel under contract or charter to the United States.

Pyrophoric liquid. See § 173.124(b) of this subchapter.

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

Radioactive materials. See § 173.403 of this subchapter for definitions relating to radioactive materials.

Rail car means a car designed to carry freight or non-passenger personnel by rail, and includes a box car, flat car, gondola car, hopper car, tank car, and occupied caboose.

Railroad means a person engaged in transportation by rail.

Receptacle means a containment vessel for receiving and holding materials, including any means of closing.

U.N. Recommendations means the U.N. Recommendations on the Transport of Dangerous Goods, Model Regulations (IBR, *see* § 171.7 of this subchapter).

Reconditioned packaging. See § 173.28 of this subchapter.

Registered Inspector means a person registered with the Department in accordance with subpart F of part 107 of this chapter who has the knowledge and ability to determine whether a cargo tank conforms to the applicable DOT specification. A *Registered Inspector* meets the knowledge and ability requirements of this section by meeting any one of the following requirements:

(1) Has an engineering degree and one year of work experience relating to the testing and inspection of cargo tanks;

(2) Has an associate degree in engineering and two years of work experience relating to the testing and inspection of cargo tanks;

(3) Has a high school diploma (or General Equivalency Diploma) and three years of work experience relating to the testing and inspection of cargo tanks; or

(4) Has at least three years' experience performing the duties of a Registered Inspector prior to September 1, 1991.

Regulated medical waste. See § 173.134 of this subchapter.

Remanufactured packagings. See § 173.28 of this subchapter.

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

Research means investigation or experimentation aimed at the discovery of new theories or laws and the discovery and interpretation of facts or revision of accepted theories or laws in the light of new facts. Research does not include the application of existing technology to industrial endeavors.

Residue means the hazardous material remaining in a packaging, including a tank car, after its contents have been unloaded to the maximum extent practicable and before the packaging is either refilled or cleaned of hazardous material and purged to remove any hazardous vapors.

Reused packaging. See § 173.28 of this subchapter.

Reverse logistics means the process of offering for transport or transporting by motor vehicle goods from a retail store for return to its manufacturer, supplier, or distribution facility for the purpose of capturing value (e.g., to receive manufacturer's credit), recall, replacement, recycling, or similar reason. This definition does not include materials that meet the definition of a hazardous waste as defined in this section.

SADT means self-accelerated decomposition temperature and is the lowest temperature at which self-accelerating decomposition may occur in a substance in the packaging, IBC, or portable tank offered for transport. *See* also § 173.21(f) of this subchapter.

Salvage packaging means a special packaging conforming to § 173.3 of this subchapter into which damaged, defective, leaking, or non-conforming hazardous materials packages, or hazardous materials that have spilled or leaked, are placed for purposes of transport for recovery or disposal.

SAPT means self-accelerated polymerization temperature and is the lowest temperature at which self-accelerating polymerization may occur with a substance in the packaging, IBC, or portable tank as offered for transport. *See* also § 173.21(f) of this subchapter. This definition will be effective until January 2, 2023.

SCF (standard cubic foot) means one cubic foot of gas measured at 60 °F. and 14.7 psia.

Secretary means the Secretary of Transportation.

Self-defense spray means an aerosol or non-pressurized device that:

(1) Is intended to have an irritating or incapacitating effect on a person or animal; and

(2) Meets no hazard criteria other than for Class 9 (for example, a pepper spray; see § 173.140(a) of this subchapter) and, for an aerosol, Division 2.1 or 2.2 (see § 173.115 of this subchapter), except that it may contain not more than two percent by mass of a tear gas substance (e.g., chloroacetophenone (CN) or 0-chlorobenzylmalonitrile (CS); see § 173.132(a)(2) of this subchapter.)

Service life, for composite cylinders and tubes, means the number of years the cylinder or tube is permitted to be in service.

Settled pressure means the pressure exerted by the contents of a UN pressure receptacle in thermal and diffusive equilibrium.

Sharps. See § 173.134 of this subchapter.

Shipping paper means a shipping order, bill of lading, manifest or other shipping document serving a similar purpose and prepared in accordance with subpart C of part 172 of this chapter.

Short circuit means a direct connection between positive and negative terminals of a cell or battery that provides an abnormally low resistance path for current flow.

Siftproof packaging means a packaging impermeable to dry contents, including fine solid material produced during transportation.

Single packaging means a non-bulk packaging other than a combination packaging.

Solid means a material which is not a gas or a liquid.

Solution means any homogeneous liquid mixture of two or more chemical compounds or elements that will not undergo any segregation under conditions normal to transportation.

Special permit means a document issued by the Associate Administrator, the Associate Administrator's designee, or as otherwise prescribed in the HMR, under the authority of 49 U.S.C. 5117 permitting a person to perform a function that is not otherwise permitted under subchapter A or C of this chapter, or other regulations issued under 49 U.S.C. 5101 *et seq.* (e.g., Federal Motor Carrier Safety routing requirements).

Specification packaging means a packaging conforming to one of the specifications or standards for packagings in part 178 or part 179 of this subchapter.

Spontaneously combustible material. See § 173.124(b) of this subchapter.

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

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.

State-designated route means a preferred route selected in accordance with U.S. DOT "Guidelines for Selecting Preferred Highway Routes for Highway Route Controlled Quantities of Radioactive Materials" or an equivalent routing analysis which adequately considers overall risk to the public.

Storage incidental to movement means storage of a transport vehicle, freight container, or package containing a hazardous material by any person between the time that a carrier takes physical possession of the hazardous material for the purpose of transporting it in commerce until the package containing the hazardous material is physically delivered to the destination indicated on a shipping document, package marking, or other medium, or, in the case of a private motor carrier, between the time that a motor vehicle driver takes physical possession of the hazardous material for the purpose of transporting it in commerce until the driver relinquishes possession of the package at its destination and is no longer responsible for performing functions subject to the HMR with respect to that particular package.

(1) ***Storage incidental to movement*** includes—

(i) Storage at the destination shown on a shipping document, including storage at a transloading facility, provided the shipping documentation identifies the shipment as a through-shipment and identifies the final destination or destinations of the hazardous material; and

(ii) Rail cars containing hazardous materials that are stored on track that does not meet the definition of "private track or siding" in § 171.8, even if those cars have been delivered to the destination shown on the shipping document.

(2) Storage incidental to movement does not include storage of a hazardous material at its final destination as shown on a shipping document.

Stowage means the act of placing hazardous materials on board a vessel.

Strong outer packaging means the outermost enclosure that provides protection against the unintentional release of its contents. It is a packaging that is sturdy, durable, and constructed so that it will retain its contents under normal conditions of transportation. In addition, a strong outer packaging must meet the general packaging requirements of subpart B of part 173 of this subchapter but need not comply with the specification packaging requirements in part 178 of the subchapter. For transport by aircraft, a strong outer packaging is subject to § 173.27 of this subchapter. The terms "strong outside container" and "strong outside packaging" are synonymous with "strong outer packaging."

Subsidiary hazard means a hazard of a material other than the primary hazard. (See *primary hazard*).

Table in § 172.101 or *§ 172.101 table* means the Hazardous Materials Table in § 172.101 of this subchapter.

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.

TOFC means trailer-on-flat-car.

Top shell means the tank car tank surface, excluding the head ends and bottom shell of the tank car tank.

Toxin. See § 173.134 of this subchapter.

Trailership means a vessel, other than a carfloat, specifically equipped to carry motor transport vehicles and fitted with installed securing devices to tie down each vehicle. The term *trailership* includes *Roll-on/Roll-off (RO/RO)* vessels.

Train means one or more engines coupled with one or more rail cars, except during switching operations or where the operation is that of classifying and assembling rail cars within a railroad yard for the purpose of making or breaking up trains.

Train consist information means a hard (printed) copy or electronic record of the position and contents of each hazardous material rail car where the record includes the information required by § 174.26 of this subchapter.

Trainship means a vessel other than a rail car ferry or carfloat, specifically equipped to transport railroad vehicles, and fitted with installed securing devices to tie down each vehicle.

Transloading means the transfer of a hazardous material by any person from one bulk packaging to another bulk packaging, from a bulk packaging to a non-bulk packaging, or from a non-bulk packaging to a bulk packaging for the purpose of continuing the movement of the hazardous material in commerce.

Transport vehicle means a cargo-carrying vehicle such as an automobile, van, tractor, truck, semitrailer, tank car or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, rail car, etc.) is a separate transport vehicle.

Transportation or *transport* means the movement of property and loading, unloading, or storage incidental to that movement.

UFC means Uniform Freight Classification.

UN means United Nations.

UN cylinder means a transportable pressure receptacle with a water capacity not exceeding 150 L that has been marked and certified as conforming to the applicable requirements in part 178 of this subchapter.

UN portable tank means an intermodal tank having a capacity of more than 450 liters (118.9 gallons). It includes a shell fitted with service equipment and structural equipment, including stabilizing members external to the shell and skids, mountings or accessories to facilitate mechanical handling. A UN portable tank must be capable of being filled and discharged without the removal of its structural equipment and must be capable of being lifted when full. Cargo tanks, rail tank car tanks, non-metallic tanks, non-specification tanks, bulk bins, and IBCs and packagings made to cylinder specifications are not UN portable tanks.

UN pressure drum means a welded transportable pressure receptacle of a water capacity exceeding 150 L (39.6 gallons) and not more than 1,000 L (264.2 gallons) (*e.g.* cylindrical receptacles equipped with rolling hoops, spheres on skids).

UN pressure receptacle means a UN cylinder, drum, or tube.

UN Recommendations means the UN Recommendations on the Transport of Dangerous Goods (IBR, see § 171.7).

UN standard packaging means a packaging conforming to standards in the UN Recommendations (IBR, see § 171.7).

UN tube means a transportable pressure receptacle of seamless or composite construction having with a water capacity exceeding 150 L (39.6 gallons) but not more than 3,000 L (792.5 gallons) that has been marked and certified as conforming to the requirements in part 178 of this subchapter.

Undeclared hazardous material means a hazardous material that is:

(1) Subject to any of the hazard communication requirements in subparts C (Shipping Papers), D (Marking), E (Labeling), and F (Placarding) of part 172 of this subchapter, or an alternative marking requirement in part 173 of this subchapter (such as §§ 173.4(a)(10) and 173.6(c)); and

(2) offered for transportation in commerce without any visible indication to the person accepting the hazardous material for transportation that a hazardous material is present, on either an accompanying shipping document, or the outside of a transport vehicle, freight container, or package.

Unintentional release means the escape of a hazardous material from a package on an occasion not anticipated or planned. This includes releases resulting from collision, package failures, human error, criminal activity, negligence, improper packing, or unusual conditions such as the operation of pressure relief devices as a result of over-pressurization, overfill or fire exposure. It does not include releases, such as venting of packages, where allowed, and the operational discharge of contents from packages.

Unit load device means any type of freight container, aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo.

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.

Unloading incidental to movement means removing a packaged or containerized hazardous material from a transport vehicle, aircraft, or vessel, or for a bulk packaging, emptying a hazardous material from the bulk packaging after the hazardous material has been delivered to the consignee when performed by carrier personnel or in the presence of carrier personnel or, in the case of a private motor carrier, while the driver of the motor vehicle from which the hazardous material is being unloaded immediately after movement is completed is present during the unloading operation. (Emptying a hazardous material from a bulk packaging while the packaging is on board a vessel is subject to separate regulations as delegated by Department of Homeland Security Delegation No. 0170.1 at 2(103).) *Unloading incidental to movement* includes transloading.

Vessel includes every description of watercraft, used or capable of being used as a means of transportation on the water.

Viscous liquid means a liquid material which has a measured viscosity in excess of 2500 centistokes at 25 °C. (77 °F.) when determined in accordance with the procedures specified in ASTM Method D 445-72 "Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)" or ASTM Method D 1200-70 "Viscosity of Paints, Varnishes, and Lacquers by Ford Viscosity Cup."

Volatility refers to the relative rate of evaporation of materials to assume the vapor state.

Waste material means, for the purposes of lab pack requirements in § 173.12 of this subchapter, all hazardous materials which are destined for disposal or recovery, and not so limited to only those defined as a hazardous waste in this section.

Water reactive material. See § 173.124(c) of this subchapter.

Water resistant means having a degree of resistance to permeability by and damage caused by water in liquid form.

Watt-hour (Wh) means a unit of energy equivalent to one watt (1 W) of work acting for one hour (1 h) of time. The Watt-hour rating of a lithium ion cell or battery is determined by multiplying the rated capacity of a cell or battery in ampere-hours, by its nominal voltage. Therefore, Watt-hour (Wh) = ampere-hour (Ah) × volts (V).

Wooden barrel means a packaging made of natural wood, of round cross-section, having convex walls, consisting of staves and heads and fitted with hoops.

Working pressure for purposes of UN pressure receptacles, means the settled pressure of a compressed gas at a reference temperature of 15 °C (59 °F).

W.T. means watertight.

[Amdt. 171-32, 41 FR 15994, Apr. 15, 1976]

Editorial Note: For FEDERAL REGISTER citations affecting § 171.8, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§ 171.9 Rules of construction.

(a) In this subchapter, unless the context requires otherwise:

(1) Words imparting the singular include the plural;

(2) Words imparting the plural include the singular; and

(3) Words imparting the masculine gender include the feminine;

(b) In this subchapter, the word:

(1) "Shall" is used in an imperative sense;

(2) "Must" is used in an imperative sense;

(3) "Should" is used in a recommendatory sense;

(4) "May" is used in a permissive sense to state authority or permission to do the act described, and the words "no person may * * *" or "a person may not * * *" means that no person is required, authorized, or permitted to do the act described; and

(5) "Includes" is used as a word of inclusion not limitation.

[Amdt. 171-32, 41 FR 15996, Apr. 15, 1976, as amended by Amdt. 171-32A, 41 FR 40630, Sept. 20, 1976; Amdt. 171-121, 58 FR 51528, Oct. 1, 1993; 75 FR 60338, Sept. 30, 2010]

§ 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, "Standard for Metric Practice".

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

TABLE OF CONVERSION FACTORS FOR SI UNITS

Measurement	SI to U.S. standard	U.S. standard to SI
Activity	1 TBq = 27 Ci	1 Ci = 0.037 TBq
Length	1 cm = 0.3937008 in 1 m = 3.280840 ft	1 in = 2.540000 cm 1 ft = 0.3048000 m
Thickness	1 mm = 0.03937008 in	1 in = 25.40000 mm
Mass (weight)	1 kg = 2.204622 lb 1 g = 0.03527397 oz	1 lb = 0.4535924 kg 1 oz = 28.34952 g
Pressure	1 kPa = 0.1450377 psi 1 Bar = 100 kPa = 14.504 psi 1 kPa = 7.5 mm Hg	1 psi = 6.894757 kPa 1 psi = 0.06895 Bar
Radiation level	1 Sv/hr = 100 rem/hr	1 rem/hr = 0.01 Sv/hr
Volume (liquid)	1 L = 0.2641720 gal 1 mL = 0.03381402 oz 1 m^3 = 35.31466 ft^3	1 gal = 3.785412 L 1 oz = 29.57353 mL 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
Force	1 Newton = 0.2248 Pound-force	1 Pound-force = 4.483 N

Abbreviation 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; Terabecquerel, TBq; Gigabecquerel, GBq; millisievert, mSv; Newton, N;

(U.S.): Inch, in; foot, ft; ounce, oz; pound, lb; psig, psi; gallon, gal; cubic feet, ft^3; Curie, Ci; millicurie, mCi; millirem, mrem.

[Amdt. 171-111, 56 FR 66159, Dec. 20, 1991, as amended by Amdt. 171-136, 60 FR 49108, Sept. 21, 1995; Amdt. 171-135, 60 FR 50302, Sept. 28, 1995; 66 FR 33335, June 21, 2001; 66 FR 45378, Aug. 28, 2001; 68 FR 75740, Dec. 31, 2003]

§ 171.11 [Reserved]

§ 171.12 North American Shipments.

(a) ***Requirements for the use of the Transport Canada TDG Regulations*** —

(1) ***Applicability.*** A hazardous material transported from Canada to the United States, from the United States to Canada, or transiting the United States to Canada or a foreign destination may be offered for transportation or transported by motor carrier and rail in accordance with the Transport Canada TDG Regulations (IBR, *see* § 171.7), an equivalency certificate (permit for equivalent level of safety), or a temporary certificate (permit in support of public interest) issued by Transport Canada as an alternative to the TDG Regulations, as authorized in § 171.22, provided the requirements in §§ 171.22 and 171.23, as applicable, and this section are met. In addition, a cylinder, pressure drum, MEGC, cargo tank motor vehicle, portable tank or rail tank car authorized by the Transport Canada

TDG Regulations may be used for transportation to, from, or within the United States provided the cylinder, pressure drum, MEGC, cargo tank motor vehicle, portable tank, or rail tank car conforms to the applicable requirements of this section. Except as otherwise provided in this subpart and subpart C of this part, the requirements in parts 172, 173, and 178 of this subchapter do not apply for a material transported in accordance with the Transport Canada TDG Regulations.

(2) ***General packaging requirements.*** When the provisions of this subchapter require a DOT specification or UN standard packaging to be used for transporting a hazardous material, a packaging authorized by the Transport Canada TDG Regulations may be used, subject to the limitations of this part, and only if it is equivalent to the corresponding DOT specification or UN packaging (see § 173.24(d)(2) of this subchapter) authorized by this subchapter.

(3) ***Bulk packagings.*** A portable tank, cargo tank motor vehicle or rail tank car equivalent to a corresponding DOT specification and conforming to and authorized by the Transport Canada TDG Regulations may be used provided—

(i) An equivalent type of packaging is authorized for the hazardous material according to the § 172.101 table of this subchapter;

(ii) The portable tank, cargo tank motor vehicle or rail tank car conforms to the requirements of the applicable part 173 bulk packaging section specified in the § 172.101 table for the material to be transported;

(iii) The portable tank, cargo tank motor vehicle or rail tank car conforms to the requirements of all assigned bulk packaging special provisions (B codes, and T and TP codes) in § 172.102 of this subchapter; and

(iv) The bulk packaging conforms to all applicable requirements of §§ 173.31, 173.32, 173.33 and 173.35 of this subchapter, and parts 177 and 180 of this subchapter. The periodic retests and inspections required by §§ 173.31, 173.32 and 173.33 of this subchapter may be performed in accordance with part 180 of this subchapter or in accordance with the requirements of the TDG Regulations provided that the intervals prescribed in part 180 of this subchapter are met.

(v) Rail tank cars must conform to the requirements of Containers for Transport of Dangerous Goods by Rail (IBR, see § 171.7).

(4) ***Cylinders, Pressure Drums, and MEGCs.*** When the provisions of this subchapter require that a DOT specification or a UN pressure receptacle must be used for a hazardous material, a packaging authorized by the Transport Canada TDG Regulations may be used only if it corresponds to the DOT specification or UN standard authorized by this subchapter. Unless otherwise excepted in this subchapter, a cylinder (including a UN pressure receptacle) or MEGC may not be transported unless—

(i) The packaging is a UN pressure receptacle or MEGC marked with the letters “CAN” for Canada as a country of manufacture or a country of approval or is a cylinder that was manufactured, inspected and tested in accordance with a DOT specification or a UN standard prescribed in part 178 of this subchapter, except that cylinders (including UN pressure receptacles) not conforming to these requirements must meet the requirements in § 171.23. Each cylinder (including UN pressure receptacles) must conform to the applicable requirements in part 173 of this subchapter for the hazardous material involved.

(ii) A Canadian Railway Commission (CRC), Board of Transport Commissioners for Canada (BTC), Canadian Transport Commission (CTC) or Transport Canada (TC) specification cylinder manufactured, originally marked, and approved in accordance with the TDG Regulations, and in full conformance with the TDG Regulations is authorized for transportation to, from or within the United States provided:

(A) The CRC, BTC, CTC or TC specification cylinder corresponds with a DOT specification cylinder and the markings are the same as those specified in this subchapter, except that the original markings were “CRC”, “BTC”, “CTC”, or “TC”;

(B) The cylinder has been requalified under a program authorized by the TDG Regulations or subpart I of part 107 of this chapter;

(C) When the regulations authorize a cylinder for a specific hazardous material with a specification marking prefix of “DOT,” a cylinder marked “CRC”, “BTC”, “CTC”, or “TC” otherwise bearing the same markings required of the specified “DOT” cylinder may be used; and

(D) Transport of the cylinder and the material it contains is in all other respects in conformance with the requirements of this subchapter (*e.g.* valve protection, filling requirements, operational requirements, etc.).

(iii) Authorized CRC, BTC, CTC, or TC specification cylinders that correspond with a DOT specification cylinder are as follows:

Table 1 to Paragraph (a)(4)(iii): Corresponding Specification Cylinders

TC	DOT (some or all of these specifications may instead be marked with the prefix ICC)	CTC (some or all of these specifications may instead be marked with the prefix BTC or CRC)
TC-3AM	DOT-3A [ICC-3]	CTC-3A
TC-3AAM	DOT-3AA	CTC-3AA
TC-3ANM	DOT-3BN	CTC-3BN
TC-3EM	DOT-3E	CTC-3E
TC-3HTM	DOT-3HT	CTC-3HT
TC-3ALM	DOT-3AL	CTC-3AL
	DOT-3B	CTC-3B
TC-3AXM	DOT-3AX	CTC-3AX
TC-3AAXM	DOT-3AAX	CTC-3AAX
	DOT-3A480X	CTC-3A480X
TC-3TM	DOT-3T	
TC-4AAM33	DOT-4AA480	CTC-4AA480
TC-4BM	DOT-4B	CTC-4B
TC-4BM17ET	DOT-4B240ET	CTC-4B240ET

TC	DOT (some or all of these specifications may instead be marked with the prefix ICC)	CTC (some or all of these specifications may instead be marked with the prefix BTC or CRC)
TC-4BAM	DOT-4BA	CTC-4BA
TC-4BWM	DOT-4BW	CTC-4BW
TC-4DM	DOT-4D	CTC-4D
TC-4DAM	DOT-4DA	CTC-4DA
TC-4DSM	DOT-4DS	CTC-4DS
TC-4EM	DOT-4E	CTC-4E
TC-39M	DOT-39	CTC-39
TC-4LM	DOT-4L	CTC-4L
TC-8WM	DOT-8	CTC-8
TC-8WAM	DOT-8AL	CTC-8AL

(5) ***Class 1 (explosive) materials.*** When transporting Class 1 (explosive) material, rail and motor carriers must comply with 49 CFR 1572.9 and 1572.11 to the extent the requirements apply.

(6) ***Lithium cells and batteries.*** Lithium metal cells and batteries (UN3090) and lithium ion cells and batteries (UN3480) are forbidden for transport as cargo aboard passenger-carrying aircraft. The outside of each package or overpack that contains lithium cells or batteries meeting the conditions for exception in § 173.185(c) of this subchapter and transported in accordance with the Transport Canada TDG Regulations must be marked or labeled in accordance with § 173.185(c)(1)(iii), (iv), and (vi), as appropriate.

(b) ***Shipments to or from Mexico.*** Unless otherwise excepted, hazardous materials shipments from Mexico to the United States or from the United States to Mexico must conform to all applicable requirements of this subchapter. When a hazardous material that is a material poisonous by inhalation (see § 171.8) is transported by highway or rail from Mexico to the United States, or from the United States to Mexico, the following requirements apply:

(1) The shipping description must include the words “Toxic Inhalation Hazard” or “Poison-Inhalation Hazard” or “Inhalation Hazard”, as required in § 172.203(m) of this subchapter.

(2) The material must be packaged in accordance with requirements of this subchapter.

(3) The package must be marked in accordance with § 172.313 of this subchapter.

(4) Except as provided in paragraph (b)(5) of this section, the package must be labeled or placarded POISON GAS or POISON INHALATION HAZARD, as appropriate, in accordance with subparts E and F to part 172 of this subchapter.

(5) A label or placard that conforms to the UN Recommendations (IBR, see § 171.7) specifications for a “Division 2.3” or “Division 6.1” label or placard may be substituted for the POISON GAS or POISON INHALATION HAZARD label or placard required by §§ 172.400(a) and 172.504(e) of this subchapter on a package transported in a closed transport vehicle or freight container. The transport vehicle or

freight container must be marked with identification numbers for the material, regardless of the total quantity contained in the transport vehicle or freight container, in the manner specified in § 172.313(c) of this subchapter and placarded as required by subpart F of this subchapter.

[Amdt. 171-111, 55 FR 52472, Dec. 21, 1990]

Editorial Note: For FEDERAL REGISTER citations affecting § 171.12, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.govinfo.gov*.

§ 171.12a [Reserved]

§ 171.14 [Reserved]

Subpart B—Incident Reporting, Notification, BOE Approvals and Authorization

§ 171.15 Immediate notice of certain hazardous materials incidents.

(a) ***General.*** As soon as practical but no later than 12 hours after the occurrence of any incident described in paragraph (b) of this section, each person in physical possession of the hazardous material must provide notice by telephone to the National Response Center (NRC) on 800-424-8802 (toll free) or 202-267-2675 (toll call). Each notice must include the following information:

(1) Name of reporter;

(2) Name and address of person represented by reporter;

(3) Phone number where reporter can be contacted;

(4) Date, time, and location of incident;

(5) The extent of injury, if any;

(6) Class or division, proper shipping name, and quantity of hazardous materials involved, if such information is available; and

(7) Type of incident and nature of hazardous material involvement and whether a continuing danger to life exists at the scene.

(b) ***Reportable incident.*** A telephone report is required whenever any of the following occurs during the course of transportation in commerce (including loading, unloading, and temporary storage):

(1) As a direct result of a hazardous material—

(i) A person is killed;

(ii) A person receives an injury requiring admittance to a hospital;

(iii) The general public is evacuated for one hour or more;

(iv) A major transportation artery or facility is closed or shut down for one hour or more; or

(v) The operational flight pattern or routine of an aircraft is altered;

(2) Fire, breakage, spillage, or suspected radioactive contamination occurs involving a radioactive material (see also § 176.48 of this subchapter);

(3) Fire, breakage, spillage, or suspected contamination occurs involving an infectious substance other than a regulated medical waste;

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

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

(6) During transportation by aircraft, a fire, violent rupture, explosion or dangerous evolution of heat (*i.e.*, an amount of heat sufficient to be dangerous to packaging or personal safety to include charring of packaging, melting of packaging, scorching of packaging, or other evidence) occurs as a direct result of a battery or battery-powered device.

(c) ***Written report.*** Each person making a report under this section must also make the report required by § 171.16 of this subpart.

Note to § 171.15: Under 40 CFR 302.6, EPA requires persons in charge of facilities (including transport vehicles, vessels, and aircraft) to report any release of a hazardous substance in a quantity equal to or greater than its reportable quantity, as soon as that person has knowledge of the release, to DOT's National Response Center at (toll free) 800-424-8802 or (toll) 202-267-2675.

[68 FR 67759, Dec. 3, 2003, as amended at 72 FR 55684, Oct. 1, 2007; 74 FR 2233, Jan. 14, 2009; 74 FR 53186, Oct. 16, 2009; 76 FR 43525, July 20, 2011; 87 FR 79766, Dec. 27, 2022]

§ 171.16 Detailed hazardous materials incident reports.

(a) ***General.*** Each person in physical possession of a hazardous material at the time that any of the following incidents occurs during transportation (including loading, unloading, and temporary storage) must submit a Hazardous Materials Incident Report on DOT Form F 5800.1 (01/2004) within 30 days of discovery of the incident:

(1) Any of the circumstances set forth in § 171.15(b);

(2) An unintentional release of a hazardous material or the discharge of any quantity of hazardous waste;

(3) A specification cargo tank with a capacity of 1,000 gallons or greater containing any hazardous material suffers structural damage to the lading retention system or damage that requires repair to a system intended to protect the lading retention system, even if there is no release of hazardous material;

(4) An undeclared hazardous material is discovered; or

(5) A fire, violent rupture, explosion or dangerous evolution of heat (*i.e.*, an amount of heat sufficient to be dangerous to packaging or personal safety to include charring of packaging, melting of packaging, scorching of packaging, or other evidence) occurs as a direct result of a battery or battery-powered device.

(b) ***Providing and retaining copies of the report.*** Each person reporting under this section must—

(1) Submit a written Hazardous Materials Incident Report to the Information Systems Manager, PHH-60, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, East Building, 1200 New Jersey Ave., SE., Washington, DC 20590-0001, or an electronic Hazardous Material Incident Report to the Information System Manager, PHH-60, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, DC 20590-0001 at *http://hazmat.dot.gov*;

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

(3) Retain a written or electronic copy of the Hazardous Materials Incident Report for a period of two years at the reporting person's principal place of business. If the written or electronic Hazardous Materials Incident Report is maintained at other than the reporting person's principal place of business, the report must be made available at the reporting person's principal place of business within 24 hours of a request for the report by an authorized representative or special agent of the Department of Transportation.

(c) ***Updating the incident report.*** A Hazardous Materials Incident Report must be updated within one year of the date of occurrence of the incident whenever:

(1) A death results from injury caused by a hazardous material;

(2) There was a misidentification of the hazardous material or package information on a prior incident report;

(3) Damage, loss or related cost that was not known when the initial incident report was filed becomes known; or

(4) Damage, loss, or related cost changes by $25,000 or more, or 10% of the prior total estimate, whichever is greater.

(d) ***Exceptions.*** Unless a telephone report is required under the provisions of § 171.15 of this part, the requirements of paragraphs (a), (b), and (c) of this section do not apply to the following incidents:

(1) A release of a minimal amount of material from—

(i) A vent, for materials for which venting is authorized;

(ii) The routine operation of a seal, pump, compressor, or valve; or

(iii) Connection or disconnection of loading or unloading lines, provided that the release does not result in property damage.

(2) An unintentional release of a hazardous material when:

(i) The material is—

(A) A limited quantity material packaged under authorized exceptions in the § 172.101 Hazardous Materials Table of this subchapter excluding Class 7 (radioactive) material; or

(B) A Packing Group III material in Class or Division 3, 4, 5, 6.1, 8, or 9;

(ii) The material is released from a package having a capacity of less than 20 liters (5.2 gallons) for liquids or less than 30 kg (66 pounds) for solids;

(iii) The total amount of material released is less than 20 liters (5.2 gallons) for liquids or less than 30 kg (66 pounds) for solids; and

(iv) The material is not—

(A) Offered for transportation or transported by aircraft;

(B) A hazardous waste; or

(C) An undeclared hazardous material;

(3) An undeclared hazardous material discovered in an air passenger's checked or carry-on baggage during the airport screening process. (For discrepancy reporting by carriers, see § 175.31 of this subchapter.)

[68 FR 67759, Dec. 3, 2003; 69 FR 30119, May 26, 2004, as amended at 70 FR 56091, Sept. 23, 2005; 74 FR 2233, Jan. 14, 2009; 76 FR 56311, Sept. 13, 2011; 78 FR 1112, Jan. 7, 2013; 85 FR 83375, Dec. 21, 2020]

§§ 171.17-171.18 [Reserved]

§ 171.19 Approvals or authorizations issued by the Bureau of Explosives.

Effective December 31, 1998, approvals or authorizations issued by the Bureau of Explosives (BOE), other than those issued under part 179 of this subchapter, are no longer valid.

[63 FR 37459, July 10, 1998]

§ 171.20 Submission of Examination Reports.

(a) When it is required in this subchapter that the issuance of an approval by the Associate Administrator be based on an examination by the Bureau of Explosives (or any other test facility recognized by PHMSA), it is the responsibility of the applicant to submit the results of the examination to the Associate Administrator.

(b) Applications for approval submitted under paragraph (a) of this section, must be submitted to the Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Washington, DC 20590-0001.

(c) Any applicant for an approval aggrieved by an action taken by the Associate Administrator, under this subpart may file an appeal with the Administrator, PHMSA within 30 days of service of notification of a denial.

[Amdt. 171-54, 45 FR 32692, May 19, 1980, as amended by Amdt. 171-66, 47 FR 43064, Sept. 30, 1982; Amdt. 171-109, 55 FR 39978, Oct. 1, 1990; Amdt. 171-111, 56 FR 66162, Dec. 20, 1991; 66 FR 45378, Aug. 28, 2001]

§ 171.21 Assistance in investigations and special studies.

(a) A shipper, carrier, package owner, package manufacturer or certifier, repair facility, or person reporting an incident under the provisions of § 171.16 must:

(1) Make all records and information pertaining to the incident available to an authorized representative or special agent of the Department of Transportation upon request; and

(2) Give an authorized representative or special agent of the Department of Transportation reasonable assistance in the investigation of the incident.

(b) If an authorized representative or special agent of the Department of Transportation makes an inquiry of a person required to complete an incident report in connection with a study of incidents, the person shall:

(1) Respond to the inquiry within 30 days after its receipt or within such other time as the inquiry may specify; and

(2) Provide true and complete answers to any questions included in the inquiry.

[68 FR 67760, Dec. 3, 2003]

Subpart C—Authorization and Requirements for the Use of International Transport Standards and Regulations

Source: 72 FR 25172, May 3, 2007, unless otherwise noted.

§ 171.22 Authorization and conditions for the use of international standards and regulations.

(a) ***Authorized international standards and regulations.*** This subpart authorizes, with certain conditions and limitations, the offering for transportation and the transportation in commerce of hazardous materials in accordance with the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), the International Maritime Dangerous Goods Code (IMDG Code), Transport Canada's Transportation of Dangerous Goods Regulations (Transport Canada TDG Regulations), and the International Atomic Energy Agency Regulations for the Safe Transport of Radioactive Material (IAEA Regulations) (IBR, see § 171.7).

(b) ***Limitations on the use of international standards and regulations.*** A hazardous material that is offered for transportation or transported in accordance with the international standards and regulations authorized in paragraph (a) of this section—

(1) Is subject to the requirements of the applicable international standard or regulation and must be offered for transportation or transported in conformance with the applicable standard or regulation; and

(2) Must conform to all applicable requirements of this subpart.

(c) ***Materials excepted from regulation under international standards and regulations.*** A material designated as a hazardous material under this subchapter, but excepted from or not subject to the international transport standards and regulations authorized in paragraph (a) of this section (e.g., paragraph 1.16 of the Transport Canada TDG Regulations excepts from regulation quantities of hazardous materials less than or equal to 500 kg gross transported by rail) must be transported in accordance with all applicable requirements of this subchapter.

(d) ***Materials not regulated under this subchapter.*** Materials not designated as hazardous materials under this subchapter but regulated by an international transport standard or regulation authorized in paragraph (a) of this section may be offered for transportation and transported in the United States in full compliance (i.e., packaged, marked, labeled, classed, described, stowed, segregated, secured) with the applicable international transport standard or regulation.

(e) ***Forbidden materials.*** No person may offer for transportation or transport a hazardous material that is a forbidden material or package as designated in—

(1) Section 173.21 of this subchapter;

(2) Column (3) of the § 172.101 Table of this subchapter;

(3) Column (9A) of the § 172.101 Table of this subchapter when offered for transportation or transported on passenger aircraft or passenger railcar; or

(4) Column (9B) of the § 172.101 Table of this subchapter when offered for transportation or transported by cargo aircraft.

(f) ***Complete information and certification.***

(1) Except for shipments into the United States from Canada conforming to § 171.12, each person importing a hazardous material into the United States must provide the shipper, and the forwarding agent at the place of entry into the United States, timely and complete written information as to the requirements of this subchapter applicable to the particular shipment.

(2) The shipper, directly or through the forwarding agent at the place of entry, must provide the initial U.S. carrier with the shipper's certification required by § 172.204 of this subchapter, unless the shipment is otherwise excepted from the certification requirement. Except for shipments for which the certification requirement does not apply, a carrier may not accept a hazardous material for transportation unless provided a shipper's certification.

(3) All shipping paper information and package markings required in accordance with this subchapter must be in English. The use of shipping papers and a package marked with both English and a language other than English, in order to dually comply with this subchapter and the regulations of a foreign entity, is permitted under this subchapter.

(4) Each person who provides for transportation or receives for transportation (see §§ 174.24, 175.30, 176.24 and 177.817 of this subchapter) a shipping paper must retain a copy of the shipping paper or an electronic image thereof that is accessible at or through its principal place of business in accordance with § 172.201(e) of this subchapter.

(g) ***Additional requirements for the use of international standards and regulations.*** All shipments offered for transportation or transported in the United States in accordance with this subpart must conform to the following requirements of this subchapter, as applicable:

(1) The emergency response information requirements in subpart G of part 172 of this subchapter;

(2) The training requirements in subpart H of part 172 of this subchapter, including function-specific training in the use of the international transport standards and regulations authorized in paragraph (a) of this section, as applicable;

(3) The security requirements in subpart I of part 172 of this subchapter;

(4) The incident reporting requirements in §§ 171.15 and 171.16 of this part for incidents occurring within the jurisdiction of the United States including on board vessels in the navigable waters of the United States and aboard aircraft of United States registry anywhere in air commerce;

(5) For export shipments, the general packaging requirements in §§ 173.24 and 173.24a of this subchapter;

(6) For export shipments, the requirements for the reuse, reconditioning, and remanufacture of packagings in § 173.28 of this subchapter; and

(7) The registration requirements in subpart G of part 107 of this chapter.

[72 FR 25172, May 3, 2007, as amended at 72 FR 55091 Sept. 28, 2007; 74 FR 53186, Oct. 16, 2009; 76 FR 56311, Sept. 13, 2011; 80 FR 72920, Nov. 23, 2015; 81 FR 35513, June 2, 2016]

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

All shipments offered for transportation or transported in the United States under the ICAO Technical Instructions, IMDG Code, Transport Canada TDG Regulations, or the IAEA Regulations (IBR, see § 171.7) must conform to the requirements of this section, as applicable.

(a) ***Conditions and requirements for cylinders and pressure receptacles*** —

(1) ***Applicability.*** Except as provided in this paragraph (a), a filled cylinder (pressure receptacle) manufactured to other than a DOT specification or a UN standard in accordance with part 178 of this subchapter, a DOT exemption or special permit cylinder, a TC, CTC, CRC, or BTC cylinder authorized under § 171.12, or a cylinder used as a fire extinguisher in conformance with § 173.309(a) of this subchapter, may not be transported to, from, or within the United States.

(2) ***Conditions.*** Cylinders (including UN pressure receptacles) transported to, from, or within the United States must conform to the applicable requirements of this subchapter. Unless otherwise excepted in this subchapter, a cylinder must not be transported unless—

(i) The cylinder is manufactured, inspected and tested in accordance with a DOT specification or a UN standard prescribed in part 178 of this subchapter, or a TC, CTC, CRC, or BTC specification set out in the Transport Canada TDG Regulations (IBR, see § 171.7), except that cylinders not conforming to these requirements must meet the requirements in paragraph (a)(3), (4), or (5) of this section;

(ii) The cylinder is equipped with a pressure relief device in accordance with § 173.301(f) of this subchapter and conforms to the applicable requirements in part 173 of this subchapter for the hazardous material involved;

(iii) The openings on an aluminum cylinder in oxygen service conform to the requirements of this paragraph, except when the cylinder is used for aircraft parts or used aboard an aircraft in accordance with the applicable airworthiness requirements and operating regulations. An aluminum DOT specification cylinder must have an opening configured with straight (parallel) threads. A UN pressure receptacle may have straight (parallel) or tapered threads provided the UN pressure receptacle is marked with the thread type, *e.g.* “17E, 25E, 18P, or 25P” and fitted with the properly marked valve; and

(iv) A UN pressure receptacle is marked with "USA" as a country of approval in conformance with §§ 178.69 and 178.70 of this subchapter, or "CAN" for Canada.

(3) ***Pi-marked cylinders.*** Cylinders with a water capacity not exceeding 150 L and that are marked with a pi mark, in accordance with the European Directive 2010/35/EU (IBR, see § 171.7), on transportable pressure equipment (TPED), and that comply with the requirements of Packing Instruction P200 or P208, and 6.2 of the Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) (IBR, see § 171.7), concerning pressure relief device use, test period, filling ratios, test pressure, maximum working pressure, and material compatibility for the lading contained or gas being filled, are authorized as follows:

(i) Filled cylinders imported for intermediate storage, transport to point of use, discharge, and export without further filling; and

(ii) Cylinders imported or domestically sourced for the purpose of filling, intermediate storage, and export.

(iii) The bill of lading or other shipping paper must identify the cylinder and include the following certification: "This cylinder (These cylinders) conform(s) to the requirements for pi-marked cylinders found in § 171.23(a)(3)."

(4) ***Importation of cylinders for discharge within a single port area.*** Except as provided in § 171.23(a)(3), a cylinder manufactured to other than a DOT specification or UN standard in accordance with part 178 of this subchapter, or a TC, CTC, BTC, or CRC specification cylinder set out in the Transport Canada TDG Regulations (IBR, see § 171.7), and certified as being in conformance with the transportation regulations of another country may be authorized, upon written request to and approval by the Associate Administrator, for transportation within a single port area, provided—

(i) The cylinder is transported in a closed freight container;

(ii) The cylinder is certified by the importer to provide a level of safety at least equivalent to that required by the regulations in this subchapter for a comparable DOT, TC, CTC, BTC, or CRC specification or UN cylinder; and

(iii) The cylinder is not refilled for export unless in compliance with paragraph (a)(5) of this section.

(5) ***Filling of cylinders for export or for use on board a vessel.*** A cylinder not manufactured, inspected, tested and marked in accordance with part 178 of this subchapter, or a cylinder manufactured to other than a UN standard, DOT specification, exemption or special permit, or other than a TC, CTC, BTC, or CRC specification, may be filled with a gas in the United States and offered for transportation and transported for export or alternatively, for use on board a vessel, if the following conditions are met:

(i) The cylinder has been requalified and marked in accordance with subpart C of part 180 of this subchapter, or has been requalified as authorized by the Associate Administrator;

(ii) In addition to other requirements of this subchapter, the maximum filling density, service pressure, and pressure relief device for each cylinder conform to the requirements of this part for the gas involved; and

(iii) The bill of lading or other shipping paper identifies the cylinder and includes the following certification: "This cylinder has (These cylinders have) been qualified, as required, and filled in accordance with the DOT requirements for export."

(6) ***Cylinders not equipped with pressure relief devices.*** A DOT specification or a UN cylinder manufactured, inspected, tested and marked in accordance with part 178 of this subchapter and otherwise conforms to the requirements of part 173 of this subchapter for the gas involved, except that the cylinder is not equipped with a pressure relief device may be filled with a gas and offered for transportation and transported for export if the following conditions are met:

(i) Each DOT specification cylinder or UN pressure receptacle must be plainly and durably marked "For Export Only";

(ii) The shipping paper must carry the following certification: "This cylinder has (These cylinders have) been retested and refilled in accordance with the DOT requirements for export."; and

(iii) The emergency response information provided with the shipment and available from the emergency response telephone contact person must indicate that the pressure receptacles are not fitted with pressure relief devices and provide appropriate guidance for exposure to fire.

(b) ***Conditions and requirements specific to certain materials*** —

(1) ***Aerosols.*** Except for a limited quantity of a compressed gas in a container of not more than 4 fluid ounces capacity meeting the requirements in § 173.306(a)(1) of this subchapter, the proper shipping name "Aerosol," UN1950, may be used only for a non-refillable receptacle containing a gas compressed, liquefied, or dissolved under pressure the sole purpose of which is to expel a nonpoisonous (other than Division 6.1, Packing Group III material) liquid, paste, or powder and fitted with a self-closing release device (see § 171.8). In addition, an aerosol must be in a metal packaging when the packaging exceeds 7.22 cubic inches.

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

(3) ***Chemical oxygen generators.*** Chemical oxygen generators must be approved, classed, described, packaged, and transported in accordance with the requirements of this subchapter.

(4) ***Class 1 (explosive) materials.*** Prior to being transported, Class 1 (explosive) materials must be approved by the Associate Administrator in accordance with § 173.56 of this subchapter. Each package containing a Class 1 (explosive) material must conform to the marking requirements in § 172.320 of this subchapter.

(5) ***Hazardous substances.*** A material meeting the definition of a hazardous substance as defined in § 171.8, must conform to the shipping paper requirements in § 172.203(c) of this subchapter and the marking requirements in § 172.324 of this subchapter:

(i) The proper shipping name must identify the hazardous substance by name, or the name of the substance must be entered in parentheses in association with the basic description and marked on the package in association with the proper shipping name. If the hazardous substance meets the definition for a hazardous waste, the waste code (for example, D001), may be used to identify the hazardous substance;

(ii) The shipping paper and the package markings must identify at least two hazardous substances with the lowest reportable quantities (RQs) when the material contains two or more hazardous substances; and

(iii) The letters "RQ" must be entered on the shipping paper either before or after the basic description, and marked on the package in association with the proper shipping name for each hazardous substance listed.

(6) ***Hazardous wastes.*** A material meeting the definition of a hazardous waste (see § 171.8) must conform to the following:

(i) The shipping paper and the package markings must include the word "Waste" immediately preceding the proper shipping name;

(ii) The shipping paper must be retained by the shipper and by each carrier for three years after the material is accepted by the initial carrier (see § 172.205(e)(5)); and

(iii) A hazardous waste manifest must be completed in accordance with § 172.205 of this subchapter.

(7) ***Marine pollutants.*** Except for marine pollutants (see § 171.8) transported in accordance with the IMDG Code, marine pollutants transported in bulk packages must meet the shipping paper requirements in § 172.203(l) of this subchapter and the package marking requirements in § 172.322 of this subchapter.

(8) ***Organic peroxides.*** Organic peroxides not identified by technical name in the Organic Peroxide Table in § 173.225(c) of this subchapter must be approved by the Associate Administrator in accordance with § 173.128(d) of this subchapter.

(9) [Reserved]

(10) ***Poisonous by inhalation materials.*** A material poisonous by inhalation (see § 171.8) must conform to the following requirements:

(i) The words "Poison-Inhalation Hazard" or "Toxic-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, must be entered on the shipping paper immediately following the basic shipping description. The word "Poison" or "Toxic" or the phrase "Poison-Inhalation Hazard" or "Toxic-Inhalation Hazard" need not be repeated if it otherwise appears in the shipping description;

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

(iii) The package must be marked in accordance with § 172.313 of this subchapter; and

(iv) Except as provided in subparagraph (B) of this paragraph (b)(10)(iv) and for a package containing anhydrous ammonia prepared in accordance with the Transport Canada TDG Regulations, the package must be labeled or placarded with POISON INHALATION HAZARD or POISON GAS, as appropriate, in accordance with Subparts E and F of part 172 of this subchapter.

(A) For a package transported in accordance with the IMDG Code in a closed transport vehicle or freight container, a label or placard conforming to the IMDG Code specifications for a "Class 2.3" or "Class 6.1" label or placard may be substituted for the POISON GAS or POISON INHALATION HAZARD label or placard, as appropriate. The transport vehicle or freight container must be marked with the identification numbers for the hazardous material in the manner specified in § 172.313(c) of this subchapter and placarded as required by subpart F of part 172 of this subchapter.

(B) For a package transported in accordance with the Transport Canada TDG Regulations in a closed transport vehicle or freight container, a label or placard conforming to the TDG Regulations specifications for a "Class 2.3" or "Class 6.1" label or placard may be substituted for the POISON GAS or POISON INHALATION HAZARD label or placard, as appropriate. The transport vehicle or freight container must be marked with the identification numbers for the hazardous material in the manner specified in § 172.313(c) of this subchapter and placarded as required by subpart F of part 172 of this subchapter. While in transportation in the United States, the transport vehicle or freight container may also be placarded in accordance with the appropriate TDG Regulations in addition to being placarded with the POISON GAS or POISON INHALATION HAZARD placards.

(11) ***Class 7 (radioactive) materials.***

(i) Highway route controlled quantities (see § 173.403 of this subchapter) must be shipped in accordance with §§ 172.203(d)(4) and (d)(10); 172.507, and 173.22(c) of this subchapter;

(ii) For fissile materials and Type B, Type B(U), and Type B(M) packagings, the competent authority certification and any necessary revalidation must be obtained from the appropriate competent authorities as specified in §§ 173.471, 173.472, and 173.473 of this subchapter, and all requirements of the certificates and revalidations must be met;

(iii) Type A package contents are limited in accordance with § 173.431 of this subchapter;

(iv) The country of origin for the shipment must have adopted the edition of SSR-6 of the IAEA Regulations referenced in § 171.7.

(v) The shipment must conform to the requirements of § 173.448, when applicable;

(vi) The definition for "radioactive material" in § 173.403 of this subchapter must be applied to radioactive materials transported under the provisions of this subpart;

(vii) Except for limited quantities, the shipment must conform to the requirements of § 172.204(c)(4) of this subchapter; and

(viii) Excepted packages of radioactive material, instruments or articles, or articles containing natural uranium or thorium must conform to the requirements of § 173.421, § 173.424, or § 173.426 of this subchapter, as appropriate.

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

(12) ***Self-reactive materials.*** Self-reactive materials not identified by technical name in the Self-reactive Materials Table in § 173.224(b) of this subchapter must be approved by the Associate Administrator in accordance with § 173.124(a)(2)(iii) of this subchapter.

[72 FR 25172, May 3, 2007, as amended at 72 FR 55684, Oct. 1, 2007; 73 FR 57004, Oct. 1, 2008; 76 FR 3345, Jan. 19, 2011; 76 FR 56311, Sept. 13, 2011; 78 FR 60751, Oct. 2, 2013; 78 FR 65468, Oct. 31, 2013; 80 FR 1116, Jan. 8, 2015; 80 FR 72920, Nov. 23, 2015; 81 FR 35513, June 2, 2016; 82 FR 15837, Mar. 30, 2017; 85 FR 75705, Nov. 25, 2020; 85 FR 85416, Dec. 28, 2020; 87 FR 44982, July 26, 2022; 89 FR 25471, Apr. 10, 2024]

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

(a) A hazardous material that is offered for transportation or transported within the United States by aircraft, and by motor vehicle or rail either before or after being transported by aircraft in accordance with the ICAO Technical Instructions (IBR, see § 171.7), as authorized in paragraph (a) of § 171.22, must conform to the requirements in § 171.22, as applicable, and this section.

(b) Any person who offers for transportation or transports a hazardous material in accordance with the ICAO Technical Instructions must comply with the following additional conditions and requirements:

(1) All applicable requirements in parts 171 and 175 of this subchapter (also see 14 CFR 121.135, 121.401, 121.433a, 135.323, 135.327 and 135.333);

(2) The quantity limits prescribed in the ICAO Technical Instructions for transportation by passenger-carrying or cargo aircraft, as applicable;

(3) The conditions or requirements of a United States variation, when specified in the ICAO Technical Instructions.

(c) ***Highway transportation.*** For transportation by highway prior to or after transportation by aircraft, a shipment must conform to the applicable requirements of part 177 of this subchapter, and the motor vehicle must be placarded in accordance with subpart F of part 172 of this subchapter.

(d) ***Conditions and requirements specific to certain materials.*** Hazardous materials offered for transportation or transported in accordance with the ICAO Technical Instructions must conform to the following specific conditions and requirements, as applicable:

(1) ***Batteries*** —

(i) ***Nonspillable wet electric storage batteries.*** Nonspillable wet electric storage batteries are not subject to the requirements of this subchapter provided—

(A) The battery meets the conditions specified in Special Provision 67 of the ICAO Technical Instructions;

(B) The battery, its outer packaging, and any overpack are plainly and durably marked “NONSPILLABLE” or “NONSPILLABLE BATTERY”; and

(C) The batteries or battery assemblies are offered for transportation or transported in a manner that prevents short circuiting or forced discharge, including, but not limited to, protection of exposed terminals.

(ii) ***Lithium cells and batteries.*** Lithium metal cells and batteries (UN3090) and lithium ion cells and batteries (UN3480) are forbidden for transport as cargo aboard passenger-carrying aircraft. The outside of each package that contains lithium metal cells or batteries transported in accordance with Packing Instruction 968, Section II or lithium ion cells or batteries transported in accordance with Packing Instruction 965, Section II must be appropriately marked: “PRIMARY LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT”, “LITHIUM METAL BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT”, “LITHIUM ION BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT”, or “LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT”, or labeled with a CARGO AIRCRAFT ONLY label as specified in §

172.448 of this subchapter. When placed in an overpack, the selected mark or label must either be clearly visible through the overpack, or the marking or label must be affixed on the outside of the overpack.

(iii) ***Low production runs or prototypes lithium cells or batteries.*** Production runs consisting of not more than 100 lithium cells or batteries per year, or prototype lithium cells or batteries (including cells or batteries packed with, or contained in, equipment or motor vehicles) not of a type proven to meet the requirements of section 38.3 of the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter), must be approved by the Associate Administrator prior to transportation aboard aircraft.

(2) A package containing Oxygen, compressed, or any of the following oxidizing gases must be packaged as required by parts 173 and 178 of this subchapter: carbon dioxide and oxygen mixtures, compressed; compressed gas, oxidizing, n.o.s.; liquefied gas, oxidizing, n.o.s.; nitrogen trifluoride; and nitrous oxide.

[72 FR 25172, May 3, 2007, as amended at 72 FR 44847, Aug. 9, 2007; 72 FR 55097, Sept. 28, 2007; 79 FR 46034, Aug. 6, 2014; 80 FR 1116, Jan. 8, 2015; 80 FR 72920, Nov. 23, 2015; 87 FR 78010, Dec. 21, 2022]

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

(a) A hazardous material may be offered for transportation or transported to, from or within the United States by vessel, and by motor carrier and rail in accordance with the IMDG Code (IBR, see § 171.7), as authorized in § 171.22, provided all or part of the movement is by vessel. Such shipments must conform to the requirements in § 171.22, as applicable, and this section.

(b) Any person who offers for transportation or transports a hazardous material in accordance with the IMDG Code must conform to the following additional conditions and requirements:

(1) Unless specified otherwise in this subchapter, a shipment must conform to the requirements in part 176 of this subchapter. For transportation by rail or highway prior to or subsequent to transportation by vessel, a shipment must conform to the applicable requirements of parts 174 and 177 respectively, of this subchapter, and the motor vehicle or rail car must be placarded in accordance with subpart F of part 172 of this subchapter. When a hazardous material regulated by this subchapter for transportation by highway is transported by motor vehicle on a public highway or by rail under the provisions of subpart C of part 171, the segregation requirements of Part 7, Chapter 7.2 of the IMDG Code are authorized.

(2) For transportation by vessel, the stowage and segregation requirements in Part 7 of the IMDG Code may be substituted for the stowage and segregation requirements in part 176 of this subchapter.

(3) The outside of each package containing lithium metal cells or batteries (UN3090) or lithium ion cells or batteries (UN3480) transported in accordance with special provision 188 of the IMDG Code must be appropriately marked “PRIMARY LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT”, “LITHIUM METAL BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT”, “LITHIUM ION BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT”, or “LITHIUM BATTERIES—FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT”, or labeled with a CARGO AIRCRAFT ONLY label as specified in § 172.448 of this subchapter. The provisions of this paragraph also apply to packages of lithium cells or batteries

packed with, or contained in, equipment that exceed 5 kg (11 pounds) net weight. When placed in an overpack, the selected marking or label must either be clearly visible through the overpack, or the marking or label must also be affixed on the outside of the overpack.

(4) Material consigned under UN3166 and UN3171 (e.g., Engines, internal combustion, etc., Vehicles, etc. and Battery-powered equipment) may be prepared in accordance with the IMDG Code or this subchapter.

(c) ***Conditions and requirements for bulk packagings.*** Except for IBCs and UN portable tanks used for the transportation of liquids or solids, bulk packagings must conform to the requirements of this subchapter. Additionally, the following requirements apply:

(1) UN portable tanks must conform to the requirements in Special Provisions TP37, TP38, TP44 and TP45 when applicable, and any applicable bulk special provisions assigned to the hazardous material in the Hazardous Materials Table in § 172.101 of this subchapter;

(2) IMO Type 5 portable tanks must conform to DOT Specification 51 or UN portable tank requirements, unless specifically authorized in this subchapter or approved by the Associate Administrator;

(3) Except as specified in this subpart, for a material poisonous (toxic) by inhalation, the T Codes specified in Column 13 of the Dangerous Goods List in the IMDG Code may be applied to the transportation of those materials in IM, IMO, and DOT Specification 51 portable tanks, when these portable tanks are authorized in accordance with the requirements of this subchapter;

(4) No person may offer an IM or UN portable tank containing liquid hazardous materials of Class 3, PG I or II, or PG III with a flash point less than 100 °F (38 °C); Division 5.1, PG I or II; or Division 6.1, PG I or II, for unloading while it remains on a transport vehicle with the motive power unit attached, unless it conforms to the requirements in § 177.834(o) of this subchapter; and

(5) No person may offer a UN fiber-reinforced plastic portable tank meeting the provisions of Chapter 6.10 of the IMDG Code (IBR, see § 171.7), except for transportation falling within the single port area criteria in paragraph (d) of this section.

(d) ***Use of IMDG Code in port areas.***

(1) Except for Division 1.1, 1.2, and Class 7 materials, a hazardous material being imported into or exported from the United States or passing through the United States in the course of being shipped between locations outside the United States may be offered and accepted for transportation and transported by motor vehicle within a single port area, including contiguous harbors, when packaged, marked, classed, labeled, stowed and segregated in accordance with the IMDG Code, offered and accepted in accordance with the requirements of subparts C and F of part 172 of this subchapter pertaining to shipping papers and placarding, and otherwise conforms to the applicable requirements of part 176 of this subchapter.

(2) 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 is not offloaded from the vessel, or is offloaded between ocean vessels at a U.S. port facility without being transported by public highway.

[72 FR 25172, May 3, 2007, as amended at 72 FR 44847, Aug. 9, 2007; 73 FR 57004, Oct. 1, 2008; 74 FR 2233, Jan. 14, 2009; 76 FR 3345, Jan. 19, 2011; 79 FR 46034, Aug. 6, 2014; 80 FR 1116, Jan. 8, 2015; 87 FR 78010, Dec. 21, 2022; 89 FR 25471, Apr. 10, 2024]

§ 171.26 Additional requirements for the use of the IAEA Regulations.

A Class 7 (radioactive) material being imported into or exported from the United States or passing through the United States in the course of being shipped between places outside the United States may be offered for transportation or transported in accordance with the IAEA Regulations (IBR, see § 171.7) as authorized in paragraph (a) of § 171.22, provided the requirements in § 171.22, as applicable, are met.