

Federal Register

**Monday
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Part III

**Department of
Transportation**

**Research and Special Programs
Administration**

**49 CFR Part 107, et al.
Transportation of Hazardous Materials;
Miscellaneous Amendments; Final Rule**

DEPARTMENT OF TRANSPORTATION

Research and Special Programs
Administration49 CFR Parts 107, 171, 172, 173, 174,
176, 177, 178, and 179(Docket No. HM-186U; Amdt. No. 107-16,
171-93, 172-109, 173-201, 174-63, 172-26,
177-70, 178-88, and 179-40)Transportation of Hazardous
Materials; Miscellaneous AmendmentsAGENCY: Research and Special Programs
Administration (RSPA), DOT.

ACTION: Final rule.

SUMMARY: This action is being taken to incorporate into the Department's Hazardous Materials Regulations a number of changes based on petitions from industry and initiation within the Department. This action is necessary to update the regulations, to eliminate the need for DOT approvals, and to reduce RSPA's backlog of rulemaking petitions.

The amendments in this rulemaking are intended primarily to reduce government regulations and paperwork, and to clarify existing regulations.

EFFECTIVE DATE: This amendment is effective May 18, 1987, except for § 172.519(b)(2) and (b)(4) which will be effective May 18, 1988. However, compliance with the regulations as amended herein, is authorized as of April 20, 1987. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of May 18, 1987.

FOR FURTHER INFORMATION CONTACT: Darrell L. Raines, Chief, Exemptions and Regulations Termination Branch, Office of Hazardous Materials Transportation, Research and Special Programs Administration, Washington, DC 20590, (202) 366-4488.

SUPPLEMENTARY INFORMATION: On June 3, 1986, the RSPA published a Notice of Proposed Rulemaking, Docket No. HM-186U; Notice No. 86-3 (51 FR 19866), which proposed a number of miscellaneous amendments to the Hazardous Materials Regulations. Notice 86-3 included a brief statement regarding each proposal and invited public comment prior to the closing date of July 31, 1986. On July 30, 1986 the RSPA published a notice (51 FR 27223) which extended the deadline date for filing comments to September 4, 1986.

The RSPA received sixty comments regarding the proposed rulemaking. The majority of commenters expressed support for the proposals. A few commenters suggested certain changes for improving specific aspects of the

rulemaking. Four commenters offered certain changes. Listed below is a section by section summary of the amendments along with a summary of the comments and RSPA's comments why the recommended changes were or were not adopted:

A. Part 107

In appendix A to Subpart B, the address under "Motor Carriers" is changed because effective October 1, 1986, the Bureau of Motor Carrier Safety (BMCS) was disbanded and reorganized under the Associate Administrator for Motor Carriers. For this reason, the reference to BMCS is changed to the new title in Part 173 and Part 177.

B. Part 171

1. In § 171.7, paragraph (c)(1) is revised to update the latest ASME Code Reference.

2. Paragraph (d)(2) is amended by changing "1982" to read "1985".

3. Paragraph (d)(3)(ii) is amended by changing "1975" to read "1984".

4. Paragraph (d)(3)(iii) is amended by changing the title and "1971" to read "1983".

5. Paragraph (d)(3)(iv) is amended by changing "1972" to read "1985".

6. Paragraph (d)(3)(ix) is amended by changing "1977" to read "1985".

7. Paragraph (d)(1) is revised and paragraphs (d)(3)(x), (d)(3)(xi) and (d)(3)(xii) are added based on a petition from the Compressed Gas Association. These changes were not included in the notice of proposed rulemaking. However, since these changes are only updating the regulation, public notice is not considered necessary.

8. Four commenters responded to the proposed change to § 171.7(d)(5) and § 171.8 regarding ASTM D 4359-84 "Standard Test Method for Determining Whether A Material is a Liquid or a Solid". Although there were no serious objections to the proposed change there was concern that ASTM D 4359-84 may not be a suitable guide for determining whether a material meets the definition of a liquid or a solid. One commenter was concerned that they may find themselves in a position of having to try and comply with three different methods for determining if a material should be treated as a liquid or solid. RSPA believes that the proposed changes should be added as proposed. We believe that any problems that arise as a result of specifying this method will be outweighed by the benefits of its adoption. For this reason, paragraph (d)(5)(xxiv) has been added as proposed.

In § 171.12, the introductory text of paragraph (a) is amended by changing

the reference to "§ 173.12(a)" to read "§ 171.12a".

C. Part 172

In § 172.101 the Table is amended as follows:

1. The entry "1-Bromo-3-nitrobenzene (unstable at 56°C)" has been removed.

2. The entry "Compound, water treatment, liquid. See Water treatment, liquid" is removed.

3. The entry "Ethylene dibromide (RQ-1000/454) is revised by changing the hazard class, label, and packaging section references.

4. An entry for "Ethyl phosphonothioic dichloride, anhydrous" is reinstated.

5. The hazard class for "Ethylene glycol diethyl ether (diethyl cellosolve)" is changed from "Combustible liquid" to "Flammable liquid".

6. The entry "Gasohol (gasoline mixed with ethyl alcohol) See Gasoline" is revised to read "Gasohol (gasoline mixed with ethyl alcohol containing 20% maximum alcohol) See Gasoline". Also, § 172.336 (c)(4) and (c)(5) are revised as proposed.

7. The ID number of "Ink", Combustible liquid, is changed from "UN2867" to "UN1210".

8. The entry "Air, refrigerated liquid (cryogenic liquid)" has been added as proposed.

9. The proposed entry for "Aluminum alkyl" and "Aluminum alkyl halide" is not included in this rulemaking as proposed. On July 15, 1986, RSPA published an emergency final rule (51 FR 25639) which added paragraph (a)(1) to § 172.102. In view of that action, the proposed change for these two entries has been withdrawn.

10. Paragraph (a)(4) in § 172.202 is revised to require the unit of measure to be identified on the shipping paper. To be consistent with this revision, § 172.202(c)(1) has also been revised.

11. Footnote 8 of Table 2 in § 172.504 is amended to authorize the use of an Oxygen placard in order to eliminate the need for dual placarding.

12. Six commenters responded to the proposed change to § 172.519(b)(2) and (b)(4). One commenter recommended that the proposed weight of 200 pounds per ream be reduced to 165 (175 nominal) pounds per ream based on comparative studies of different placards. Two commenters supported the proposal and two recommended the matter be handled in a separate rulemaking. Upon further consideration of the matter, including an inquiry made to a supplier of placards, RSPA believes the proposed weight should be adjusted based on satisfactory experience with waterproofed placards having a weight

less than 200 pounds per ream. A 175 minimum weight is being adopted with credit for the weight of waterproofing materials included. Placard manufacturers may produce placards from stock having a weight per ream below 175 pounds if they determine the weight per sheet would be 175 pounds with the waterproofing material added. RSPA does not agree that this matter requires a separate rulemaking action and will monitor the performance of placards produced according to this rule to determine if further action is needed.

D. Part 173

1. Paragraph (b)(4) of § 173.11 is revised, as proposed, to require a shipper to identify the type of packaging on the registration statement.

2. Paragraph (b)(2) of § 173.12 is revised to require the open-head polyethylene drum to pass the same drop test as specified for the fiber drum.

3. The California Highway Patrol recommended that the introductory text of § 173.25(c) which reads "Hazardous materials classed Poison B" be changed to be consistent with § 177.841(e). RSPA agrees with this commenter and has revised the introductory text to read "Hazardous materials which are required to be labeled Poison".

4. In § 173.31, Retest Table 2 is amended by adding DOT Specification 110A600-W multi-unit tank car tanks.

5. Eleven commenters raised questions regarding portable tanks and the proposed amendments to §§ 173.32(a) and 173.32c. Several of the commenters raised questions which will require RSPA to spend a considerable amount of time in order to reach a decision. Since this rulemaking is already several weeks behind its anticipated publication date, RSPA has withdrawn the proposed changes to § 173.32(a) and § 173.32c from this rulemaking and will include them in a separate rulemaking in the near future.

6. In § 173.33, paragraph (d)(13) has been amended by changing "Director, Regional Motor Carrier Safety Office" to read "Regional Director of Motor Carrier Safety".

7. Included in this rulemaking, but not included in the notice, is an amendment in § 173.34(e)(8) to increase the number of pounds of water capacity from ten to twelve. This amendment is necessary in order to bring the maximum size in line with the 4B240ET specification.

8. Paragraph (g) in § 173.51 is amended to include a reference to 14 CFR 108.11.

9. Paragraph (b) in § 173.57 is removed as proposed.

10. An editorial correction is made in § 173.81(b) in order for the package

marking to coincide with the § 172.101 Table.

11. Seven commenters supported the proposed change to § 173.86(h) and (i) which would eliminate costly and redundant data accumulation and testing of a material which represents a minimal hazard.

12. The introductory text of § 173.87 is revised to provide an exception to the Department of Defense (DOD) for shipments made under the provisions of § 173.7(a).

13. One commenter supported the proposed change to § 173.93(a)(2) which will eliminate some of the burden on shippers of smokeless powder for small arms.

14. Editorial corrections are made in § 173.104(c) to make the making requirements the same as the proper shipping name listed in the § 172.101 Table.

15. The use of DOT Specification 17C metal drums in § 173.122(a)(4) for the packaging of acrolein, inhibited is removed as proposed.

16. In § 173.164(a)(2), Specification 17C drums is added for the packaging of chromic acid or chromic acid mixture, dry.

17. RSPA received two comments regarding the co-mingling of inside boxes of smokeless powder under the provisions of § 173.197a. One commenter recommended that the net weight of smokeless powder in one box be increased from 16 pounds to 32 pounds. The commenter suggested this increase based on shipping experience under a Bureau of Explosives approval and a DOT exemption. RSPA does not agree that the net weight should be increased because the proposed change is to authorize the co-mingling of inside boxes without further approval. The B of E approval and the DOT exemption were not issued to provide for mixing different powders in one outside package.

18. The proposed change to § 173.220 to authorize the use of fiberboard boxes with inside polyethylene bags for packaging magnesium or zirconium scrap consisting of borings, shavings, or turnings is adopted as proposed.

19. The proposed change for "§173.245(a)" Note 2 should have read "§ 173.245a" Note 2. Although the proposed change was based on an AAR petition they have stated that the proposed amendment still does not authorize the presence of cobalt. Based upon their comments and upon further consideration, RSPA has revised the last sentence of Note 2 to reference ASTM B162-80 which counts cobalt as nickel. The same change has been made in §§173.253(a)(7); 173.271(a)(9);

173.294(a)(2), (a)(3) and (b); 179.202-8; 179.202-11 and 179.202-16 and will not be repeated in each of these referenced sections.

20. In § 173.262(b)(4) reference to "§ 178.353-5" is corrected to read "§ 178.343-5".

21. In § 173.286, paragraph (f)(2) is revised to provide for the proper identification plate marking for stainless steel cargo tanks.

22. Paragraph (d)(1) in § 173.277 has been removed.

23. The proposed amendment to § 173.300(a) to clarify that a cryogenic liquid is subject to regulation without regard to the pressure in the container is withdrawn. Two commenters stated that the proposed amendment would present a hardship to distributors of atmospheric cryogenic liquids and cryogenic helium, at pressures below 25.3 psig. Upon further consideration, RSPA agrees with these commenters and withdraws the proposed amendment.

24. The proposed change to § 173.301(k) to not require the outside packaging to provide valve protection if the cylinder has a protective collar or neck ring is adopted.

25. Paragraph § 173.302(a)(5)(iv) is revised by removing the restriction of a maximum 3000 psi marked service pressure on 3AL cylinders used in oxygen service.

26. The Table in § 173.304(a)(2) is amended by authorizing the use of (1) DOT-3AL1800 cylinders for carbon dioxide and (2) DOT-4BW225 for the transportation of sulfur dioxide.

27. In Note 8 of § 173.314(c) the figure "%" is changed to read "82.5".

28. In § 173.315 paragraph (c) is revised to correct an omission that was made in Docket HM-115 on June 16, 1983.

29. In § 173.316, the Table in paragraph (c)(2) is revised to provide filling limits for "air, refrigerated liquid".

30. In § 173.318, paragraph (b) is revised to require the use of a primary and a secondary system of pressure relief devices on cargo tanks used in certain cryogenic service. With the exception of paragraphs (b)(3) and (b)(5), all of paragraph (b) is revised and rearranged for clarity. Paragraphs (b)(3) and (b)(5) are now paragraphs (b)(9) and (b)(10), respectively. Paragraphs (f)(2) and (f)(3) have been amended to provide filling limits for "air, refrigerated liquid" and to increase the filling limit authorized for "hydrogen" when transported in cargo tanks.

31. Except for minor editorial changes, the proposed changes to § 173.320 is adopted.

32. Section 173.965 *Cotton and other fibers*, is added as proposed.

E. Part 174

The proposed change in § 174.9(b) regarding whether heater coil inlet and outlet pipes "must" or "may" be left open for drainage is withdrawn. Based upon the data from the Federal Railroad Administration, RSPA agrees that the pipes "must" be left open for drainage and for airing out which helps to prevent rusting within the coils.

F. Part 176

In § 176.76, paragraph (g)(2) is added to authorize small passenger vessels of 100 gross tons, or less, to carry a hazardous material in a portable tank under certain conditions.

G. Part 177

1. In § 177.814, paragraph (b) is amended by changing "Director, Regional Motor Carrier Safety Office" and "Director of Regional Motor Carrier Safety Office" to read "Regional Director of Motor Carrier Safety". Also, a similar change is made in § 177.824(f) and § 177.824(f)(2).

2. Nineteen commenters supported the removal of paragraph (k) in § 177.834 which pertains to access to mixed ladings. The paragraphs is removed as proposed, and references to it in §§ 177.835, 177.837, 177.838, 177.839, 177.840 and 177.841 are corrected.

3. Five commenters supported the proposed change to § 177.841(e) to prohibit a motor carrier from carrying poisons or irritating materials in the passenger compartment of a motor vehicle. One commenter suggested that the wording be amended to include sleeper berth. RSPA agrees with this commenter and has revised the sentence accordingly.

4. One commenter agreed with the proposed change in § 177.848(b). However, he also suggested that a new paragraph be added in § 172.203(m) to require additional information to be added on the shipping paper. RSPA believes that this suggested change goes beyond the scope of this rulemaking. Also, the suggested wording may be controversial. For these reasons, the commenters suggestion is not adopted.

H. Part 178

1. A change to § 178.38-10(c) is included in this final rule to eliminate confusion due to the fact that there are optional test pressures authorized in the hydrostatic test prescribed in § 178.38-14. Good design and performance is assured by using two times the service pressure in the formula instead of three times the service pressure.

2. In § 178.42-14, the introductory text of paragraph (a) is revised to specifically state the location where the marking requirements must be on a DOT Specification 3E cylinder.

3. The proposed changes to correct and update the DOT-SAL Specification (§ 178.46) are incorporated, as proposed.

4. In § 178.51-10(d) and § 178.61-10(b) the ratio of tangential length to outside diameter is revised to read "4.1" instead of "4.0".

5. A correction is made in § 178.53-9(a) by changing "0.40" to read "0.04".

6. Section 178.54 for 4B240-FLW cylinders is removed from Part 178. Part 173 will continue to authorize the use of these cylinders.

7. In § 178.245-1, the introductory text of paragraph (a) is revised to bring the specification for DOT-51 tanks in line with the MC 331 and MC 338 specifications.

8. Docket HM-186T changed the words "tank motor vehicle" to read "cargo tank" in several sections in Part 178. However, as pointed out by the California Highway Patrol, the words "tank motor vehicle" makes better sense in § 178.337-1(d) and § 178.337-13(b). RSPA agrees and these two sections are revised accordingly.

I. Part 179

1. An editorial change is made in § 179.100-13(a) by removing the word "directly" in the second sentence.

2. The proposed changes regarding bottom outlets and fittings in § 179.100-14(a)(1) and § 179.100-14(a)(3) are adopted, as proposed.

3. The proposed change in § 179.102-2(a)(3) to allow the use of a new insulation package for chlorine tank cars is adopted.

4. The proposed revision to § 179.102-13 has been withdrawn as requested by the petitioner. The AAR stated that they believe the requirements for hydrogen fluoride tank cars now are adequately covered by the AAR's Specification for Tank Cars, § 2.1.7. Since the time the AAR submitted its petition, they have worked with the CMA on improving the proposed specification and § 2.1.7 incorporates the improvements.

5. The proposed revisions to § 179.103-5(b)(1) and (b)(4) were based on a petition by the AAR. RSPA proposed in the last sentence of § 179.103-5(b)(1) that the permanent attachment of supplementary exterior fittings be approved by the Director, Office of Hazardous Materials Transportation. RSPA is well aware of the approval authority by the AAR Committee on Tank Cars in Part 179 of 49 CFR. Requiring RSPA approval in this particular section was an error on our

part and § 179.103-5(b)(1) has been amended by changing "approved by the Director, Office of Hazardous Materials Transportation" to read "approved by the AAR Committee on Tank Cars".

6. No objections were received regarding the proposal to clarify the heading in each of the Tables in § 179.200-7. However, the AAR requested that the same change be made in § 179.220-7. RSPA agrees with this commenter and has revised § 179.220-7 accordingly.

7. The proposed revision of § 179.200-13 was intended to clarify the present discrepancies in the nozzle-to-tank joints between pressure tank car tanks and non-pressure tank car tanks. The AAR, upon further consideration, has requested a few editorial changes. RSPA has revised § 179.200-13 as requested.

8. The proposed changes to § 179.200-17 were suggested by the AAR and were intended to clarify the present wording. RSPA changed the wording in the last sentence of paragraph (a)(1) by requiring approval by the Director, Office of Hazardous Materials Transportation. Again, our reason for proposing approval by the Director, OHMT was not intended and "approval by the AAR Committee on Tank Cars" appears in the final rule.

9. Except for minor changes, sections 179.202-8, 179.202-11, 179.202-16, 179.202-18, 179.220-19, 179.221-1, 179.222 and 179.301 are revised as proposed in the notice. In § 179.220-7 the Tables are changed as discussed in § 179.200-7.

Based on limited information available concerning size and nature of entities likely to be affected, I certify that this regulation will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. Also, in view of the type of changes, the RSPA has further determined that this rulemaking (1) is not "major" under Executive Order 12291; (2) is not "significant" under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); (3) will not affect not-for-profit enterprises, or small governmental jurisdictions; and (4) does not require an environmental impact statement under the National Environmental Policy Act (49 U.S.C. 4321 et seq.). A regulatory evaluation is not considered necessary because the anticipated impact is minimal.

The following list of Federal Register Thesaurus of Indexing Terms apply to this rulemaking:

List of Subjects

49 CFR Part 107

Hazardous materials transportation, Emergency exemptions.

49 CFR Part 171

Hazardous materials transportation, Definitions, Incorporation by Reference.

49 CFR Part 172

Hazardous materials transportation, Labeling, Packaging and containers.

49 CFR Part 173

Hazardous materials transportation, Packaging and containers.

49 CFR Part 174

Hazardous materials transportation, Railroad Safety.

49 CFR Part 176

Hazardous materials transportation, Maritime carriers.

49 CFR Part 177

Hazardous materials transportation, Motor carriers.

49 CFR Part 178

Hazardous materials transportation, Packaging and containers.

49 CFR Part 179

Hazardous materials transportation, Railroad safety.

PART 107—HAZARDOUS MATERIALS PROGRAM PROCEDURES

1. The authority citation for Part 107 continues to read as follows:

Authority: 49 U.S.C. 1421(c); 49 U.S.C. 1802, 1806, 1806-1811; 49 CFR 1.45 and 1.53 and App. A of Part 1, Pub. L. 80-670 (49 U.S.C. 1653(d), 1655).

2. In Appendix A to Subpart B, the address and telephone number for "Motor Carriers" is revised to read as follows:

Appendix A to Subpart B—List of Department of Transportation Officials Through Whom Application for Exemptions Seeking Priority Treatment of the Basis of Existing Emergencies May be Initiated by Telephone

Motor Carriers

Chief, Standards Development Division, Office of Motor Carrier Standards, Federal Highway Administration, Department of

Transportation, Washington, DC 20590. Day 202-366-2981 and Night 202-267-2100.

PART 171—GENERAL INFORMATION REGULATIONS, AND DEFINITIONS

3. The authority citation for Part 171 continues to read as follows:

Authority: 49 U.S.C. 1802, 1803, 1804, 1806; 49 CFR Part 1, unless otherwise noted.

4. In § 171.7, paragraphs (d)(1), (d)(2), (d)(3)(ii), (d)(3)(iii), (d)(3)(iv), and (d)(3)(ix) are revised; paragraphs (d)(3)(x), (d)(3)(xi), (d)(3)(xii), and (d)(5)(xxxiv) are added to read as follows:

§ 171.7 Matter incorporated by reference.

(d)
(1) ASME Code means Sections II (Parts A and B), V, VIII (Division I), and IX of the 1986 edition of the "American Society of Mechanical Engineers Boiler and Pressure Vessel Code" and addenda thereto through June 30, 1985".

(2) AAR Specifications for Tank Cars means the 1985 edition of the "Association of American Railroads Specifications for Tank Cars, Specification M-1002".

(3) Compressed Gas Association:

(ii) CGA Pamphlet C-6, is titled, "Standards for Visual Inspection of Steel Compressed Gas Cylinders", 1984 edition.

(iii) CGA Pamphlet C-7 is titled, "Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers", 1983 edition including Appendix A issued April 15, 1983.

(iv) CGA Pamphlet C-8, is titled, "Standard for Requalification of DOT-3HT Seamless Steel Cylinders", 1985 edition.

(ix) CGA Pamphlet G-4.1 is titled, "Cleaning Equipment for Oxygen Service", 1985 edition.

(x) CGA Pamphlet G-2.2 is titled, "Guideline Method for Determining Minimum of 0.2% Water in Anhydrous Ammonia", 1985 edition.

(xi) CGA Technical Bulletin TB-2 is titled, "Guidelines for Inspection and Repair of MC-330 and MC-331 Cargo Tanks", 1980 edition.

(xii) CGA Pamphlet C-6.1 is titled, "Standards for Visual Inspection of

Aluminum Compressed Gas Cylinders", 1984 edition.

(5) American Society for Testing and Materials:

(xxxiv) ASTM D 4359-84 is titled, "Standard Test Method for Determining Whether a Material is a Liquid or a Solid", 1984 edition.

5-6. In § 171.8, a definition for "Liquid" and "Solid" is added in their proper alphabetical order to read as follows:

§ 171.8 Definitions and abbreviations.

"Liquid" means a material that has a vertical flow of over 2 inches (50 mm) within a three minute period, or a material having one gram (1g) or more liquid separation, when determined in accordance with the procedures specified in ASTM D 4359-84, "Standard Test Method for Determining whether a Material is a Liquid or Solid", 1984 edition.

"Solid" means a material which has a vertical flow of two inches (50 mm) or less within a three-minute period, or a separation of one gram (1g) or less of liquid when determined in accordance with the procedures specified in ASTM D 4359-84 "Standard Test Method for Determining Whether a Material is a Liquid or Solid", 1984 edition.

§ 171.12 [Amended]

7. Paragraph 171.12(a) is amended by replacing the section reference "§ 173.12a" with the section reference "§ 171.12a".

PART 172—HAZARDOUS MATERIALS TABLES AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

8. The authority citation for Part 172 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806; 49 CFR Part 1, unless otherwise noted.

9. In § 172.101, the Hazardous Materials Table is amended by removing, adding, or revising the following entries.

§ 172.101 Hazardous materials table.

*E/A/W	Hazardous materials descriptions and proper shipping names	Hazard class	Identification number	Label(s) required (if not excepted)	Packaging		Maximum net quantity in one package		Water shipments		
					Exceptions	Specific requirements	Passenger carrying aircraft or railcar	Cargo aircraft only	Cargo vessel	Passenger vessel	Other requirements
(1)	(2)	(3)	3(a)	(4)	5(a)	5(b)	6(a)	6(b)	7(a)	7(b)	7(c)
	REMOVE 1-Bromo-3-Nitrobenzene (unstable at 56° C). Compound, water treatment liquid. See Water treatment liquid. REVISE	Forbidden									
	Ethylene dibromide	Poison B	UN 1805	Poison	173.343	173.346	1 quart	55 gallons	1.2	1.2	Slow away from living quarters.
	Ethylene glycol diethyl ether (diethyl Cellosolve). Gasohol (gasoline mixed with ethyl alcohol containing 20% maximum alcohol). See Gasoline.	Flammable liquid	UN 1153	Flammable	173.118	173.119	1 quart	10 gallons	1.2	1.2	
	ADD Air, refrigerated liquid (cryogenic liquid).	Combustible liquid	UN 1210	None	173.118a	None	No limit	No limit	1.2	1.2	
		Nonflammable Gas	UN 1003	Nonflammable Gas	173.320	173.318	Forbidden	300 pounds	1.2	1.2	Slow separate from flammables. Do not overstock with other cargo.
	Ethyl phosphonothioic dichloride, anhydrous.	Corrosive material	NA 1760	Corrosive	173.244	173.245 173.246a	1 quart	1 quart	1	4	

10. In § 172.202, paragraphs (a)(4) and (c)(1) are revised to read as follows:

§ 172.202 Description of hazardous materials on shipping papers.

(a) * * *

(4) Except for empty packagings, cylinders for compressed gases, and packagings of greater than 110 gallons capacity, the total quantity by weight (net or gross as appropriate) or volume, including the unit of measure, of the hazardous material covered by the description. For example: "800 lbs", "55 gal"

(c) * * *

(1) Abbreviations may be used to specify the type of packaging and unit of measurement for total quantity. For example: "10 ctns. Paint, Flammable liquid, UN1263, 500 lbs".

11. In § 172.336, paragraphs (c)(4) and (c)(5) are revised to read as follows:

§ 172.336 Identification numbers; special provisions and exceptions.

(c) * * *

(4) For each of the different liquid petroleum distillate fuels, including gasoline and gasohol in a compartmented cargo tank or tank car, if the identification number is displayed for the distillate fuel having the lowest flash point.

(5) For each of the different liquid petroleum distillate fuels, including gasoline and gasohol transported in a cargo tank, if the identification number is displayed for the liquid petroleum distillate fuel having the lowest flash point.

12. In § 172.504, footnote 8 in Table 2 is revised to read as follows:

§ 172.504 General placarding requirements.

(d) * * *

* A NON-FLAMMABLE GAS placard is not required on a motor vehicle displaying a FLAMMABLE GAS placard or an OXYGEN placard.

13. In § 172.519, paragraphs (b)(2) and (b)(4) are revised to read as follows:

§ 172.519 General specifications for placards.

(b) * * *

(2) A weight of 175 pounds per ream of 24 by 36-inch sheets (waterproofing materials included):

(4) Been treated with plastic or other waterproofing material that will give it the ability to withstand open weather exposure (including rain) for 30 days without a substantial reduction in effectiveness.

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

14. The authority citation for Part 173 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806, 1807, 1808; 49 CFR Part 1, unless otherwise noted.

15. In § 173.11, paragraph (b)(4) is revised to read as follows:

§ 173.11 Shipper's registration statement; flammable cryogenic liquids.

(b) * * *

(4) The type of packaging and the serial number or vehicle identification number of each portable tank and cargo tank, and the reporting mark and number of each tank car, owned, leased, or otherwise controlled by the shipper and used to offer a flammable cryogenic liquid for transportation.

16. In § 173.12, paragraph (b)(2) is revised to read as follows:

§ 173.12 Exception for shipment of waste material.

(b) * * *

(2) A four foot drop test as specified in § 178.224-2(b).

17. In § 173.25, the introductory text of paragraph (c) is revised to read as follows:

§ 173.25 Authorized packages and overpacks.

(c) Hazardous materials which are required to be labeled Poison, may be transported in the same motor vehicle with material that is marked or known to be foodstuffs, feed or any edible material intended for consumption by humans or animals provided the Poison B material is marked, labeled, and packaged in accordance with this subchapter, conforms to the requirements of paragraph (a) of this

section and is overpacked as specified in § 177.841(e) or is in an overpack meeting the following requirements:

18. In § 173.31, Retest Table 2 following paragraph (d)(8) is amended by adding Specification 110A600-W in its proper numerical sequence to read as follows:

§ 173.31 Qualification, maintenance, and use of tank cars.

(d) . . .

RETEST TABLE 2

Specification	Retest interval— years		Retest pressure p.s.i.		Safety relief valve pressure— p.s.i.	
	Tank	Safety relief devices*	Tank hydrostatic expansion†	Tank air test	Start-to-discharge	Vapor tight
110A600-W	5	2	600	100	450	300

19. In § 173.33, paragraph (d)(13) is amended by revising the last sentence to read as follows:

§ 173.33 Qualification, maintenance, and use of cargo tanks.

(d) . . .

(13) . . . However, upon a written request to, and with the approval of the Regional Director of Motor Carrier Safety, for the region in which a motor carrier has its principal place of business, the carrier may maintain the reports at a regional or terminal office.

§ 173.34 [Amended]

20. In § 173.34, in paragraph (e)(8) is amended by replacing the words "not over ten pounds" with the words "not over twelve pounds".

21. In § 173.51, paragraph (g) is revised to read as follows:

§ 173.51 Forbidden explosives.

(g) Loaded firearms (except as provided in 14 CFR 108.11).

22. In § 173.57, paragraph (b) is removed and reserved as follows:

§ 173.57 Rocket ammunition.

(a) . . .

(b) [Reserved]

23. In § 173.58, paragraph (b) is removed and reserved as follows:

§ 173.58 Ammunition for small arms.

(a) . . .

(b) [Reserved]

24. In § 173.81, the heading and paragraph (b) are revised to read as follows:

§ 173.81 Cord, detonating.

(b) Each outside packaging shall be plainly marked "CORD, DETONATING-HANDLE CAREFULLY".

25. In § 173.86, paragraph (a)(2) is revised and paragraphs (h) and (i) are added to read as follows:

§ 173.86 New explosives definitions; approval and notification.

(a) . . .

(2) Has previously produced the explosive compound, mixture or device, but has made a change in the formulation, design, process or production equipment. An explosive compound mixture or device will not be considered a "new explosive" if an agency listed in paragraph (b) of this section has determined and confirmed in writing that there are no significant differences in hazard characteristics from the explosive compound, mixture or device previously approved. The written determination must be submitted to and approved by, the Director, OHMT before the explosive is offered for transportation.

(h) The requirements of this section do not apply to small arms ammunition which is:

(1) Not a forbidden explosive under § 173.51;

(2) Ammunition for rifle, pistol, or shotgun;

(3) Ammunition with inert projectile or blank ammunition; and

(4) Ammunition not exceeding 50 caliber for rifle or pistol cartridges or 8 gauge for shotshells.

(i) If experience or other data indicate that the hazard of a material (device) containing an explosive composition is greater or less than indicated according to the definition and criteria specified in §§ 173.53, 173.86, and 173.100 of this Part, the Director, OHMT may, following examination in accordance with paragraph (b) of this section, revise its classification or except the material (device) from the requirements of this subchapter.

26. In § 173.87, the first sentence is amended to read as follows:

§ 173.87 Explosives in mixed packaging.

Unless specifically authorized in this subchapter, explosives may not be packaged in the same outside packaging with other articles unless packaged by the DOD in accordance with § 173.7(a).

27. In § 173.93, paragraph (a)(2) is added to read as follows:

§ 173.93 Propellant explosives (solid) for cannon, small arms, rockets, guided missiles, or other devices, and propellant explosives (liquid).

(a) . . .

(2) Smokeless powder for small arms may be shipped as Class B explosives in packagings approved in accordance with § 173.197a.

28. In § 173.104, the heading and paragraph (c) are revised to read as follows:

§ 173.104 Cord, detonating; fuse, mild detonating, metal clad; or flexible linear shaped charge, metal clad.

(c) Cord, detonating *flexible*; fuse, mild detonating, metal clad and flexible linear shaped charges, metal clad shall be packed in wooden or fiberboard boxes. Each package shall be marked "CORD, DETONATING-HANDLE CAREFULLY" or "FLEXIBLE LINEAR SHAPED CHARGES, METAL CLAD-HANDLE CAREFULLY", as appropriate.

29. In § 173.122, paragraph (a)(4) is removed and reserved to read as follows:

§ 173.122 Acrolein, inhibited.

(a) . . .

(4) [Reserved]

30. In § 173.164, paragraph (a)(2) is revised to read as follows:

§ 173.164 **Chromic acid or chromic acid mixture, dry.**

(a) . . .

(2) Specification 17C, 17H, or 37A (§§ 178.115, 178.118, 178.131 of this subchapter) metal drums. Spec. 37A metal drums constructed from 22-gauge steel throughout are authorized for a gross weight of 490 pounds or less when shipped in a carload or truckload lot.

31. In § 173.197a, the section is revised to read as follows:

§ 173.197a **Smokeless powder for small arms.**

Smokeless powder for small arms in quantities not exceeding 100 pounds net weight transported in one rail car or motor vehicle may be classed as a flammable solid when examined for this classification by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT. Maximum quantity in any inside packaging may not exceed 8 pounds. Inside packagings must be arranged and protected to prevent simultaneous ignition of the contents. The complete package must be a type examined by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT. In addition, inside packages which have been examined by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT, may be overpacked in DOT-12A85, 12B85, or 12H65 fiberboard boxes provided all inside containers are firmly packed to prevent movement and the net weight of smokeless powder in any one box does not exceed 18 pounds. Each outside package must bear a **FLAMMABLE SOLID** label.

32. In § 173.220, the introductory text of paragraph (a) is revised and paragraph (a)(3) is added to read as follows:

§ 173.220 **Magnesium or zirconium scrap consisting of borings, clippings, shavings, sheets, turnings, or scrapings, and magnesium metallic (other than scrap), powder, pellets, turnings, or ribbon; magnesium aluminum.**

(a) Magnesium or zirconium scrap consisting of borings, shavings, or turnings, must be packed in closed metal barrels or drums, wooden barrels, metal pails, fiber drums, fiberboard boxes with inside polyethylene bags or liner, or four-ply paper bags. Fiberboard boxes with inside polyethylene bags or liner or paper bags are not authorized for less-

than-carload or less-than-truckload shipments.

(3) When transported by vessel, magnesium scrap may not be carried in paper bags and zirconium scrap may only be packaged in an hermetically sealed metal drum not exceeding 80 pounds net weight.

33. In § 173.245a, footnote 2 following the Table in paragraph (a) is revised to read as follows:

§ 173.245a **Corrosive liquids, n.o.s. shipped in bulk.**

(a) . . .

* Specification 103ANW tank car tanks must be fabricated of solid nickel at least 95 percent pure and containing not more than 1 percent iron. Metal test coupons for welding procedure qualification must contain not more than 1 percent iron. All cast metal parts of the tank in contact with the lading must have a minimum nickel content of approximately 96.7 percent. Specification 103A tank car tanks must be lead-lined steel or must be made of steel with at least 10 percent nickel cladding. Specification 103AW, 111A100F2, or 111A100W2 tanks must be lead-lined steel or made of steel with a minimum nickel cladding of 1/16 inch thickness. Nickel cladding in tanks must be low carbon nickel in accordance with ASTM B182-80.

34. In § 173.253, paragraphs (a)(7) and (a)(8) are revised to read as follows:

§ 173.253 **Chloroacetyl chloride.**

(a) . . .

(7) Specification 103AW, 111A60W2, or 111A100F2 (§§ 179.200, 179.201 of this subchapter). Tanks cars. Tanks must have a nickel cladding of 1/16 inch minimum thickness. Nickel cladding in tanks must be low carbon nickel in accordance with ASTM B162-80.

(8) Specification 103ANW (§§ 179.200 and 179.201 of this subchapter). Tank cars. Tanks must be fabricated of solid nickel at least 95 percent pure and containing not more than 1 percent iron. Metal test coupons for welding procedure qualification must contain not more than 1 percent iron. All cast metal parts of the tank in contact with the lading must have a minimum nickel content of approximately 96.7 percent.

§ 173.262 **[Amended]**

35. In § 173.262, in paragraph (b)(4) is amended by replacing the reference "§ 178.353-5" with the reference "178.343-5" in the last sentence.

36. In § 173.266, the eight sentence in paragraph (f)(2) is revised to read as follows:

§ 173.266 **Hydrogen peroxide solution in water.**

(f) . . .

(2) . . . The tank metal identification plate required shall be marked "DOT MC 310-H₂O₂" or "DOT MC 312-AL-H₂O₂" or "DOT MC 312-SS-H₂O₂", as appropriate, and in addition, the cargo tank shall be clearly marked in letters not less than one inch high "FOR HYDROGEN PEROXIDE ONLY". . . .

37. In § 173.271, paragraphs (a)(7), (a)(8)(iv), and (a)(9) are revised to read as follows:

§ 173.271 **Methyl phosphonic dichloride, phosphorus oxybromide, phosphorus oxychloride, phosphorus trichloride, and thiophosphoryl phosphorus chloride.**

(a) . . .

(7) Specification 103ANW (§§ 179.200, 179.201 of this chapter). Tank cars. Tanks must be fabricated of solid nickel at least 95 percent pure and containing not more than 1 percent iron. Metal test coupons for welding procedure qualification must contain not more than 1 percent iron. All cast metal parts of the tank in contact with the lading must have a minimum nickel content of approximately 96.7 percent.

(8) . . .

(iv) Specification MC 311 or MC 312 cargo tanks. Tanks must be fabricated of solid nickel at least 95 percent pure and not more than 1 percent iron. Metal test coupons for welding procedure qualification must contain not more than 1 percent iron. All cast metal parts of the tank in contact with the lading must have a minimum nickel content of approximately 96.7 percent. Authorized only for phosphorus oxychloride and phosphorus trichloride.

(9) Specification 103A¹, 103AW, 111A60W2, or 111A00F2 (§§ 179.200, 179.201 of this subchapter). Tank cars. Specification 103A¹, tanks must be lead-lined steel or made of steel with nickel cladding of at least 10 percent of the shell thickness. Specification 103AW, 111A60W2, or 111A100F2 tanks must be lead-lined steel or made of steel with nickel cladding with a minimum thickness of 1/8 inch. Nickel cladding in tanks must be low carbon nickel in accordance with ASTM B182-80.

38. In § 173.277, paragraph (d)(1) is removed and reserved as follows:

§ 173.277 **Hypochlorite solutions.**

(d) . . .

(1) Reserved]

39. In § 173.294, the heading, paragraphs (a)(2), (a)(3), and (b) are revised to read as follows:

§ 173.294 Chloroacetic acid, liquid or solution.

(a)

(2) Specification 103ANW, 103AW, 111A60W2, or 111A100F2 (§§ 179.200, 179.201 of this subchapter). Tank cars. Specification 103AW, 111A60W2, or 111A100F2 tanks cars must be nickel clad with a nickel thickness of at least 20 percent of the shell thickness. Nickel cladding in tanks must be low carbon nickel in accordance with ASTM B162-80.

(3) Specification MC 310, MC 311, or MC 312 (§ 178.343 of this chapter). Cargo tanks. Tanks must be fabricated of solid nickel at least 95 percent pure and containing not more than 1 percent iron. Type 304 of 316 stainless steel or be suitably lined. Nickel metal test coupons for welding procedures qualification must contain no more than 1 percent iron.

(b) Chloroacetic acid, anhydrous, when shipped as a liquid must be shipped in Specification 103ANW tank cars fabricated of nickel containing not more than 1 percent iron or in Specification 103AW or 111A60W2 tank car tanks with nickel cladding of at least 20 percent of the shell thickness or be provided with a suitable corrosive resistant coating or lining. Nickel cladding in tanks must be low carbon nickel in accordance with ASTM B162-80.

40. In § 173.301, paragraph (k)(1) is revised to read as follows:

§ 173.301 General requirements for shipment of compressed gases in cylinders.

(k) *Outside packagings.*

(1) Outside packaging must provide protection for the cylinder. Unless the cylinder has a protective collar or neck ring, the outside packaging must provide protection to the valve against accidental functioning and damage.

41. In § 173.302, paragraph (a)(5)(iv) is revised to read as follows:

§ 173.302 Charging of cylinders with nonliquefied compressed gases.

(a)

(5)

(iv) The pressure in the cylinder may not exceed 3,000 psig at 70° F.

42. In § 173.304, the Table in paragraph (a)(2) is amended by revising

the entries for carbon dioxide and sulfur dioxide as follows:

§ 173.304 Charging of cylinders with liquefied compressed gas.

(a)

(2)

Kind of gas	Maximum permitted filling density (percent) (see note 1)	Containers marked as shown in this column or of the same type with higher service pressure must be used except as provided in §§ 173.34(a), (b), and 173.301(j) (see notes following table)
Carbon dioxide (see notes 4, 7, and 8).	68	DOT-3A1800; DOT-3AX1800; DOT-3AA1800; DOT-3AA1800; DOT-3; DOT-3E1800; DOT-311800; DOT-3HT2000; DOT-39; DOT-3AL1800
Sulfur dioxide (see note 8).	125	DOT-3A225; DOT-3AA225; DOT-3B225; DOT-4A225; DOT-4B225; DOT-4BA225; DOT-4BW225; DOT-4B240ET; DOT-3; DOT-4; DOT-25; DOT-26-150; DOT-39; DOT-3E1800; and DOT-3AL225

43. In § 173.314, the third sentence of Note 6 following the Table in paragraph (c) is revised to read as follows:

§ 173.314 Requirements for compressed gases in tank cars.

Pressure control valve setting (maximum start-to-discharge pressure (psig))	Maximum permitted filling density (percent by weight)					
	Air	Argon	Nitrogen	Oxygen	Helium	Neon
45	82.5	133	78	108	12.5	109
75	80.3	130	74	105	12.5	104
105	78.4	127	72	103	12.5	100
170	76.2	122	70	100	12.5	92
230	75.1	119	69	98	12.5	85
295	73.3	115	68	96	12.5	77
360	70.7	113	65	93	12.5	
450	65.9	111	61	91	12.5	
540	62.9	107	58	88	12.5	
625	60.1	104	55	86	12.5	
Design service temperature (°F.)	-320	-320	-320	-320	-452	-411

46. In § 173.318, paragraphs (b), (f)(2), and (f)(3) are revised to read as follows:

§ 173.318 Cryogenic liquids in cargo tanks.

(b) *Pressure relief systems and pressure control valves.*—(1) *Types of pressure relief systems.*—(i) *Tanks in oxygen and flammable cryogenic liquid service.* Except as otherwise provided in this paragraph, each tank in oxygen and flammable cryogenic liquid service must be protected by two independent pressure relief systems which are not connected in series, namely:

(c) The discharge capacity of each of these safety relief devices must be sufficient to prevent building up of pressure in the tank in excess of 82.5 percent of the tank test pressure.

44. In § 173.315, the introductory text of paragraph (c) is revised to read as follows:

§ 173.315 Compressed gases in cargo tanks and portable tanks.

(c) Except as otherwise provided, the loading of a liquefied gas into a cargo tank or portable tank shall be determined by weight or by a suitable liquid level gauging device. The vapor pressure (psig) at 115° F. must not exceed the design pressure of the cargo tank or portable tank container. The liquid portion of the gas shall not fill the tank at 105° F. if the tank is insulated, or at 115° F. if the tank is uninsulated, except that this requirement shall not apply to:

45. In § 173.316, the Table in paragraph (c)(2) is revised to read as follows:

§ 173.316 Cryogenic liquids in cylinders.

(c)

(2)

(A) A primary system of one or more pressure relief valves; and

(B) A secondary system of one of more frangible discs or pressure relief valves. For a tank in carbon monoxide service, the secondary system must be pressure relief valves only.

(ii) *Tanks in helium and atmospheric gas (except oxygen) cryogenic liquid service.* For a tank used in helium and atmospheric gas (except oxygen) cryogenic liquid service, the tank must be protected by at least one pressure relief system consisting of:

(A) One of more pressure relief valves; or

(B) A combination of one or more pressure relief valves and one or more frangible discs.

(2) *Capacities of pressure relief systems.*—(i) *Tanks in oxygen or flammable cryogenic liquid service.* For tanks in oxygen or flammable cryogenic liquid service, the primary system and the secondary system of pressure relief devices must each have a flow capacity equal to or greater than that calculated by the applicable formula in paragraph 5.3.2 or paragraph 5.3.3 of CGA Pamphlet S-1.2. In addition:

(A) The primary pressure relief system must have his total flow capacity at a pressure not exceeding 120 percent of the tank's design pressure.

(B) The secondary pressure relief system must have this total flow capacity at a pressure not exceeding 150 percent of the tank's design pressure.

(ii) *Tanks in helium and atmospheric gas (except oxygen) cryogenic liquid service.* For tanks in helium and atmospheric gas (except oxygen) cryogenic liquid service, the pressure relief system must have a flow capacity equal to or greater than that calculated by the applicable formula in paragraphs 5.3.2 or 5.3.3 of CGA Pamphlet S-1.2. If the pressure relief system consists of a combination of pressure relief valves and frangible discs, the pressure relief valves must have a total venting capacity equal to or greater than that calculated by the applicable formula in paragraph 4.1.10.1.1 of CGA Pamphlet S-1.2. The pressure relief system must have this total flow capacity at a pressure not exceeding 150 percent of the tank's design pressure.

(3) *Type and construction of pressure relief devices.*—(i) Each pressure relief device must be designed and constructed for a pressure equal to or exceeding the tank's design pressure at the coldest temperature reasonably expected to be encountered.

(ii) Pressure relief devices must be either spring-loaded pressure relief valves of frangible discs. Pressure relief valves must be of a type that automatically open and close at predetermined pressures.

(4) *Setting of pressure relief devices.*—(i) On a tank used in oxygen or flammable cryogenic liquid service, the pressure relief devices must perform as follows.

(A) Each pressure relief valve in the primary relief system must be set-to-discharge at a pressure no higher than 110 percent of the tank's design pressure.

(B) Each pressure relief device in the secondary pressure relief system must be designed to commence functioning at a pressure no lower than 130 percent

and no higher than 150 percent of the tank's design pressure.

(ii) On a tank used in helium and atmospheric gas (except oxygen) cryogenic liquid service, the pressure relief devices in the pressure relief system must be designed to commence functioning at no higher than 150 percent of the tank's design pressure.

(5) *Optional pressure relief devices and pressure control valves.* In addition to the required pressure relief devices, a cargo tank in cryogenic liquid (except carbon monoxide) service may be equipped with one or both of the following:

(i) One or more pressure control valves set at a pressure below the tank's design pressure.

(ii) One or more frangible discs set to function at a pressure not less than one and one-half times or more than two times the tank's design pressure.

(6) *Maximum filling rate.* (i) For a tank used in oxygen and flammable cryogenic liquid service, the maximum rate at which the tank is filled must not exceed the liquid flow capacity of the primary pressure relief system rated at a pressure not exceeding 120 percent of the tank's design pressure.

(ii) On tanks used in helium and atmospheric gas (except oxygen) cryogenic liquid service, the maximum rate at which the tank is filled must not exceed the liquid flow capacity of the pressure relief valves rated at 150 percent of the tank's design pressure.

(7) *Arrangement and location of pressure relief devices.* (i) The discharge from any pressure relief system must be directed upward and be unobstructed to the outside of the protective housing in such a manner as to prevent impingement of gas upon the jacket or any structural part of the vehicle.

(ii) Each pressure relief valve must be arranged or protected to prevent the accumulation of foreign material between the relief valve and the atmospheric discharge opening in any relief piping. The arrangement must not impede flow through the device.

(iii) Each pressure relief valve must be designed and located to minimize the possibility of tampering. If the pressure setting or adjustment is external to the valve, the valve adjustment must be sealed.

(iv) Each pressure relief device must have direct communication with the vapor space of the tank at the midlength of the top centerline.

(v) Each pressure relief device must be installed and located so that the cooling effect of the contents during venting will not prevent the effective operation of the device.

(8) *Connections.* (i) Each connection to a pressure relief device must be of sufficient size to allow the required rate of discharge through the pressure relief device. The inlet connection must be not less than one-half inch nominal pipe size.

(ii) A shut-off valve may be installed in a pressure relief system only when the required relief capacity is provided at all times.

(9) *Pressure relief devices for piping hose and vacuum-insulated jackets.* (i) Each portion of connected liquid piping or hose that can be closed at both ends must be provided with either a hydrostatic pressure relief valve without an intervening shut-off valve, or a check valve permitting flow from the pipe or hose into the tank. If used, the relief valve must be located so as to prevent its discharge from impinging on the tank, piping, or operating personnel.

(ii) On a vacuum-insulated cargo tank the jacket must be protected by a suitable relief device to release internal pressure. The discharge area of this device must be at least 0.00024 square inch per pound of water capacity of the tank. This relief device must function at a pressure not exceeding the internal design pressure of the jacket, calculated in accordance with the ASME Code, or 25 psig, whichever is less.

(10) *Tank inlet, outlet, pressure relief device and pressure control valve markings.* (i) Each tank inlet and outlet, except pressure relief devices and pressure control valves, must be permanently marked to indicate whether it communicates with "vapor" or "liquid" when the tank is filled to the maximum permitted filling density.

(ii) Each pressure relief valve must be plainly and permanently marked with the pressure, in psig, at which it is set-to-discharge, the discharge rate of the device in SCF per minute (SCFM) of free air, and the manufacturer's name or trade name and catalog number. The marked set-to-discharge pressure valve must be visible with the valve in its installed position. The rated discharge capacity of the device must be determined at a pressure of 120 percent of the design pressure of the tank.

(iii) Each pressure control valve must be plainly and permanently marked with the pressure, in psig, at which it is set-to-discharge.

(f) * * *

(2) *Air, argon, helium, nitrogen, and oxygen, cryogenic liquids* must be loaded and shipped in accordance with the following table:

PRESSURE CONTROL VALVE SETTINGS OR RELIEF VALVE SETTING

Maximum set-to-discharge pressure (psig)	Maximum permitted filling density (percent by weight)				
	Air	Argon	Helium	Nitrogen	Oxygen
26			92.5		
30	88.3	129	12.5	74	95
40	79.2		12.5		
50	76.0		12.5		
55	77.3	125	12.5	71	94
60	78.9		12.5		
80	73.3		12.5		
85	75.1	121	12.5		90
100	73.0		12.5		
105	73.7		12.5	67	
120	72.2		12.5		
140	71.4		12.5		
145	70.9	115	12.5	64	84
180	68.3		12.5		
200	67.3	110	12.5	61	81
250	65.9	108	12.5	57	87
275	62.3	106	12.5	56	86
325	59.4	101		59	83
Design service temperature	-320°F	-320°F	-452°F	-320°F	-320°F

(3) Carbon monoxide, hydrogen (minimum 95 percent para-hydrogen), ethylene, and methane or natural gas, cryogenic liquids must be loaded and shipped in accordance with the following table:

PRESSURE CONTROL VALVE SETTINGS OR RELIEF VALVE SETTING

Maximum set-to-discharge pressure (psig)	Maximum permitted filling density (percent by weight)			
	Carbon monoxide	Ethylene	Hydrogen	Methane or natural gas
13			6.6	
15	75.8		6.6	40.5
17	74.0		6.6	
20		63.5		40.0
25	73.0			
30	72.0	52.7	6.3	39.1
35				
40		52.0		38.6
45	71.5			
50		51.4	6.0	38.2
55				
60		50.8		
70		50.2	5.7	37.5
80		49.2		
85				
100		48.4	5.4	36.6
115		46.2		
125			5.0	
150			4.5	
175	52.5	45.8		
285	56.0			
Design service temperature	-320°F	-156°F	-452°F	-200°F

47. Section 173.320 is revised to read as follows:

§ 173.320 Cryogenic liquids; exceptions.

(a) Atmospheric gases and helium, cryogenic liquids, in Dewar flasks, insulated cylinders, insulated portable tanks, insulated cargo tanks, and insulated tank cars, designed and constructed so that the pressure in such packagings will not exceed 25.3 psig under ambient temperature conditions during transportation are not subject to the requirements of this subchapter when transported by motor vehicle or railcar except as specified in paragraphs (a)(1), (a)(2), and (a)(3) of this section.

(1) Sections 171.15 and 171.16 of this subchapter pertaining to the reporting of incidents, not including a release that is the result of venting through a pressure control valve, or the neck of the Dewar flask.

(2) Subparts A, B, C, and D of Part 172, (§§ 174.24 for rail and 177.817 for highway) and in addition, Part 172 in its entirety for oxygen.

(3) Subparts A and B of Part 173, and §§ 174.1 and 177.800, 177.804, 177.807, and 177.823 of this subchapter.

(b) The requirements of this subchapter do not apply to atmospheric gases and helium:

(1) During loading and unloading operations (pressure rises may exceed 25.3 psig); or

(2) When used in operation of a process system; such as a refrigeration system (pressure may exceed 25.3 psig).

(c) For transportation aboard aircraft, see § 171.11 of this subchapter.

48. Section 173.965 is added to read as follows:

§ 173.965 Cotton and other fibers.

Cotton and the fibers jute, hemp, flax, sisal, coir, kapok, or similar vegetable fibers, when offered for transportation by water, must be packaged in bales, securely and tightly bound with rope, wire, or other similar means.

PART 176—CARRIAGE BY VESSEL

49. The authority citation for Part 176 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806(b), 1808; 49 CFR Part 1, unless otherwise noted.

50. In § 176.76, paragraph (g)(2) is added to read as follows:

§ 176.76 Highway vehicles, railroad vehicles, freight containers, and portable tanks containing hazardous materials.

(g) * * *

(2) Small passenger vessels of 100 gross tons, or less, may carry a hazardous material in a portable tank only when 16 or less passengers are on board and only when specifically authorized by the Officer-in-Charge, Marine Inspection, by endorsement of the vessel's Certificate of Inspection.

PART 177—CARRIAGE BY PUBLIC HIGHWAY

51. The authority citation for Part 177 continues to read as follows:

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

52. In § 177.814, paragraph (b) is revised to read as follows:

§ 177.814 Retention of manufacturer's certificate and retest reports.

(b) Upon a written request to, and with the approval of, the Regional Director of Motor Carrier Safety, for the region in which a motor carrier has his principal place of business, a motor carrier may retain the certificate and other data specified in paragraph (a) of this section at a regional or terminal office. The address and jurisdictions of the Regional Directors of Motor Carrier

Safety are shown in § 390.40 of Chapter III of this title.

53. In § 177.824, the introductory text of paragraph (f) and the last sentence of paragraph (f)(2) are revised to read as follows:

§ 177.824 Retesting and inspection of cargo tanks.

(f) *Reporting requirements.* Each motor carrier shall file with the Chief, Standards Development Division, Office of Motor Carrier Standards, Federal Highway Administration, Department of Transportation, Washington, DC 20590, a written listing of all MC 330 and MC 331 cargo tanks he has in service. Each motor carrier, upon placing in service or withdrawing from service any MC 330 and MC 331 cargo tank (other than a cargo tank used in interchange service which is reported upon by another carrier), shall file a supplemental report with the Office of Motor Carrier Standards.

(2) * * * However, upon a written request to, and with the approval of the Regional Director of Motor Carrier Safety, for the region in which a motor carrier has his principal place of business, the carrier may maintain the reports at a regional or terminal office.

54. In § 177.834, paragraph (k) is removed and reserved to read as follows:

§ 177.834 General requirements.

(k) [Reserved]

55. In §§ 177.835, 177.837, 177.838, 177.839 and 177.840 the first line following each of the section headings is revised and paragraph (g) in § 177.838 is revised to read as follows:

§ 177.835 Explosives.

(See also §§ 177.834 (a) to (j).)

§ 177.837 Flammable liquids.

(See also §§ 177.834 (a) to (j).)

§ 177.838 Flammable solids and oxidizing materials.

(See also §§ 177.834 (a) to (j).)

(g) Smokeless powder for small arms in quantities not exceeding 100 pounds net weight transported in one rail car or motor vehicle may be classed as a flammable solid when examined for this classification by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT. Maximum quantity in any inside packaging may not exceed 8 pounds. Inside packagings must be arranged and protected to prevent simultaneous ignition of the contents. The complete package must be a type examined by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT. In addition, inside packages which have been examined by the Bureau of Explosives or the Bureau of Mines and approved by the Director, OHMT, may be overpacked in DOT-12A85, 12B85, or 12H65 fiberboard boxes provided all insider containers are firmly packed to prevent movement and the net weight of smokeless powder in any one box does not exceed 16 pounds. Each outside package must bear a **FLAMMABLE SOLID** label.

§ 177.839 Corrosive liquids.

(See also §§ 177.834 (a) to (j).)

§ 177.840 Compressed gases, including cryogenic liquids.

(See also §§ 177.834 (a) to (j).)

56. In § 177.841, the first line following the section heading is revised and paragraph (e) is amended by adding a sentence at the end to read as follows:

§ 177.841 Poisons.

(See also §§ 177.834 (a) to (j).)

(e) * * * No motor carrier may transport a packaging containing a material which is required to be labeled "Poison", "Poison gas", or "Irritant" in the driver's compartment (including a sleeper berth) of a motor vehicle.

57. In § 177.848, paragraph (b) is revised to read as follows:

§ 177.848 Segregation and separation chart of hazardous materials.

(b) Cyanides or cyanide mixtures must not be loaded or stored with acids or any other acidic materials which could release hydrocyanic acid from cyanides.

PART 178—SHIPPING CONTAINER SPECIFICATIONS

58. The authority citation for Part 178 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806, 1808; 49 CFR Part 1, unless otherwise noted.

59. In § 178.38, § 178.38-10, paragraph (b) is amended by revising the formula to read as follows:

§ 178.38 Specification 3B; seamless steel cylinders.

§ 178.38-10 Wall thickness.

(b) * * * $P =$ at least two times service pressure or 450 pounds per square inch, whichever is the greater;

60. In § 178.42, § 178.42-14, the introductory text of paragraph (a) is revised to read as follows:

§ 178.42 Specification 3E; seamless steel cylinders.

§ 178.42-14 Marking.

(a) Marking on each cylinder by stamping plainly and permanently on the shoulder, top head, neck or sidewall as follows:

61. In § 178.46, § 178.46-4(a), § 178.46-5(d)(1) and footnote 1 of (d)(2), § 178.46-6(c), and § 178.46-8(e) are revised to read as follows:

§ 178.46 Specification 3AL; seamless cylinders made of definitely prescribed aluminum alloys.

§ 178.46-4 Duties of the inspector.

(a) The inspector shall determine that all materials are in compliance with the requirements of this specification.

§ 178.46-5 Authorized material and identification of material.

(d) * * *

(1) CHEMICAL COMPOSITION LIMITS

[Chemical Composition (in weight percent)]

Aluminum Assoc. alloy designation No.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Other ^a		A1
											Each	Total	
6351	0.7-1.3	0.50	0.10	0.40-0.80	0.40-0.80	0.20	0.20	0.01	0.01	0.05	0.15	Remainder. Do.
6061	0.40-0.80	0.70	0.15-0.40	0.15	0.80-1.20	0.04-0.35	0.25	0.15	0.01	0.01	0.05	0.15	

^a ASTM B 221-76 Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Shapes, and Tubes, Table 1 Chemical Composition Limits, except for Pb and Bi. Limits are in percent maximum unless otherwise indicated.

^b Analysis is regularly made only for the elements for which specific limits are shown, except for unalloyed aluminum. If however, the presence of other elements is suspected to be, or in the course of routine analysis is indicated to be in excess of specified limits, further analysis is made to determine that these other elements are not in excess of the amount specified. (Aluminum Association Standards and Data/Sixth Edition 1979).

(2) Mechanical Property Limits

¹ "D" represents specimen diameters. When the cylinder wall is greater than 1/8 inch thick, a retest without reheat treatment using the 4D size specimen is authorized if the test using the 2 inch size specimen fails to meet elongation requirements.

§ 178.46-6 Manufacture.

(c) Thickness of the cylinder base may not be less than the prescribed minimum wall thickness of the cylindrical shell. The cylinder base must have a basic torispherical, hemispherical, or ellipsoidal interior base configuration where the dish radius is no greater than 1.2 times the inside diameter of the shell. The knuckle radius may not be less than 12 percent of the inside diameter of the shell. The interior base contour may deviate from the true torispherical, hemispherical or ellipsoidal configuration provided that—

- (1) Any areas of deviation are accompanied by an increase in base thickness;
- (2) All radii of merging surfaces are equal to or greater than the knuckle radius;
- (3) Each design has been qualified by successfully passing the cycling tests in § 178.46-6(f); and
- (4) Detailed specifications of the base design are available to the inspector.

§ 178.46-8 Openings.

(e) All openings must be threaded. Threads must comply with the following:

- (1) Each thread must be clean cut, even, without checks, and to gauge.
- (2) Taper threads, when used, must conform to one of the following:
 - (i) American Standard Pipe Thread (NPT) type, conforming to the

requirements of Federal Standard H-28 (1978), Section 7;

(ii) National Gas Taper Thread (NGT) type, conforming to the requirements of Federal Standard H-28 (1978), Sections 7 and 9; or

(iii) Other taper threads conforming to other standards may be used provided the length is not less than that specified for NPT threads.

(3) Straight threads, when used, must conform to one of the following:

(i) National Gas Straight Thread (NGS) type, conforming to the requirements of Federal Standard H-28, (1978), Sections 7 and 9;

(ii) Unified Thread (UN) type, conforming to the requirements of Federal Standard H-28, (1978), Section 2;

(iii) Controlled Radius Root Thread (UNR) type, conforming to the requirements of Federal Standard H-28 (1978), Section 4.

(iv) Other straight threads conforming to other recognized standards may be used provided that the requirements in subparagraph (e)(4) of this section are met.

(4) All straight threads must have at least 6 engaged threads, a tight fit, and a factor of safety in shear of at least 10 at the test pressure of the cylinder. Shear stress must be calculated by using the appropriate thread shear area in accordance with Federal Standard H-28 (1978), Appendix A5, Section 3.

62. In § 178.51, § 178.51-10, paragraph (d), is revised to read as follows:

§ 178.51 Specification 48A; welded or brazed steel cylinders made of definitely prescribed steels.

§ 178.51.-10 Wall thickness.

(d) For a cylinder with a wall thickness less than 0.100 inch, the ratio of tangential length to outside diameter may not exceed 4.1.

§ 178.53-9 [Amended]

Paragraph (a) of § 178.53-9 is amended by replacing the number "0.40" with the number "0.04".

§ 178.54 [Removed and Reserved]

63. Section 178.54 is removed and reserved.

64. In § 178.61, § 178.61-10, paragraph (b) is revised to read as follows:

§ 178.61 Specification 48W; welded steel cylinders made of definitely prescribed steels with electric-arc welded longitudinal seam.

§ 178.61-10 Wall thickness.

(b) For a cylinder with a wall thickness less than 0.100 inch, the ratio of tangential length to outside diameter may not exceed 4.1.

65. In § 178.245-1, the introductory text of paragraph (a) is revised to read as follows:

§ 178.245 Specifications 51; steel portable tanks.

(a) Tanks must be seamless or welded steel construction or combination of both and have a water capacity in excess of 1,000 pounds. Fusion welded tanks must be postweld heat treated and radiographed as prescribed in the ASME Code except that each tank constructed in accordance with Part UHT of the ASME Code must be postweld heat treated. Where postweld heat treatment is required, the tank must be treated as a unit after completion of all the welds in and/or to the shell and heads. The method must be as prescribed in the ASME Code. Welded attachments to pads may be made after postweld heat treatment is made. A tank used for anhydrous ammonia must be postweld heat treated. The postweld heat treatment must be as prescribed in the ASME Code, but in no event at less than 1050°F. tank metal temperature. Additionally, tanks constructed in

accordance with Part UHT of the ASME Code must conform to the following requirements:

§ 178.337-1 [Amended]

66. Paragraph (d) of § 178.337-1 is amended by replacing the words "cargo tanks" with the words "tank motor vehicle".

§ 178.337-13 [Amended]

67. Paragraph (b) of § 178.337-13 is amended by replacing the second and third words "cargo tanks" with the words "tank motor vehicle".

PART 179—SPECIFICATIONS FOR TANK CARS

68. The authority citation for Part 179 continues to read as follows:

Authority: 49 U.S.C. 1803, 1804, 1805, 1806, 1808; 49 CFR Part 1, unless otherwise noted.

69. In § 179.100, § 179.100-13(a), § 179.100-14(a)(1) and (a)(3) are revised to read as follows:

§ 179.100 General specifications applicable to pressure tank car tanks. § 179.100-13 Venting, loading and unloading valves, measuring and sampling devices.

(a) Venting, loading and unloading valves must be of approved design, made of metal not subject to rapid deterioration by the lading, and must withstand the tank test pressure without leakage. The valves shall be bolted to seatings on the manway cover, except as provided in § 179.103. Valve outlets shall be closed with approved screw plugs or other closures fastened to prevent misplacement.

§ 179.100-14 Bottom outlets

(a) (1) The extreme projection of the bottom washout equipment may not be more than that allowed by Appendix E of the AAR Specifications for Tank Cars.

(3) If the bottom washout nozzle extends 6 inches or more from shell of tank, a V-shaped breakage groove shall be cut (not cast) in the upper part of the outlet nozzle at a point immediately below the lowest part of the inside closure seat or plug. In no case may the nozzle wall thickness at the root of the "V" be more than 1/4-inch. Where the nozzle is not a single piece, provision shall be made for the equivalent of the breakage groove. The nozzle must be of a thickness to insure that accidental breakage will occur at or below the "V" groove or its equivalent. On cars

without continuous center sills, the breakage groove or its equivalent may not be more than 15 inches below the tank shell. On cars with continuous center sills, the breakage groove or its equivalent must be above the bottom of the center sill construction.

70. In § 179.102, § 179.102-2, paragraph (a)(3) is revised to read as follows:

§ 179.102 Special commodity requirements for pressure tank car tanks.

§ 179.102-2 Chlorine.

(a) (3) Insulation must be 4 inches minimum thickness of corkboard or of polyurethane foam or must be 2 inches minimum thickness of 4 pounds per cubic foot minimum density ceramic fiber covered by 2 inches minimum thickness of glass fiber.

71. In § 179.103, § 179.103-5, paragraphs (b)(1) and (b)(4) are revised to read as follows:

§ 179.103 Special requirements for class 114A tank car tanks.

§ 179.103-5 Bottom outlets.

(b) (1) The extreme projection of the bottom outlet equipment may not be more than allowed by Appendix E of the AAR Specifications for Tank Cars. All bottom outlet reducers and closures and their attachments shall be secured to car by at least 1/2-inch chain, or its equivalent, except that bottom outlet closure plugs may be attached by 1/4-inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve shall be closed by a plug cap, or approved quick coupling device. The bottom outlet equipment should include only the valve, reducers and closures that are necessary for the attachment of unloading fixtures. The permanent attachment of supplementary exterior fittings must be approved by the AAR Committee on Tank Cars.

(4) If the outlet nozzle extends 6 inches or more from shell of tank, a V-shaped breakage groove shall be cut (not cast) in the upper part to the outlet nozzle at a point immediately below the lowest part of valve closest to the tank. In no case may the nozzle wall thickness at the roof of the "V" be more than 1/4-inch. On cars without continuous center sills, the breakage groove or its equivalent may not be more than 15 inches below the tank shell. On cars with continuous center sills, the breakage

groove or its equivalent must be above the bottom of the center sill construction.

72. In § 179.200, § 179.200-7, paragraphs (b), (c), (d), (e), and (f) are amended by changing the heading in each Table; § 179.200-13 is revised, and in § 179.200-17, paragraphs (a)(1), (a)(6), (a)(7), (b)(1), and (b)(3) are revised to read as follows:

§ 179.200 General specifications applicable to non-pressure tank car tanks

§ 179.200-7 Materials.

(a) (b)

Specifications	Minimum tensile strength (p.s.i.) welded condition ¹	Minimum elongation in 2 inches (percent) weld metal (longitudinal)

(c)

Specifications	Minimum tensile strength (p.s.i.) welded condition ²	Minimum elongation in 2 inches (percent) temper weld metal (longitudinal)

(d)

Specifications	Minimum tensile strength (p.s.i.) welded condition ¹	Minimum elongation in 2 inches (percent) weld metal (longitudinal)

(e)

Specifications	Minimum tensile strength (p.s.i.) welded condition ¹	Minimum elongation in 2 inches (percent) weld metal (longitudinal)

(f)

Specifications	Minimum tensile strength (p.s.i.) welded condition	Minimum elongation in 2 inches (percent) weld metal (longitudinal)

§ 179.200-13 Manway ring or flange, safety relief device flange, bottom outlet nozzle flange, bottom washout nozzle flange and other attachments and openings.

(a) These attachments shall be fusion welded to the tank and reinforced in an approved manner in compliance with the requirements of Appendix E, figure 10, of the AAR Specifications for Tank Cars.

(b) The opening in the manway ring must be at least 18 inches in diameter except that acid resistant lined manways must be at least 18 inches in diameter before lining.

(c) The manway ring or flange, shall be made of cast, forged or fabricated metal. The metal of the dome, tank, or nozzle must be compatible with the manway ring or flange, so that they may be welded together.

(d) The openings for the manway or other fittings shall be reinforced in an approved manner.

§ 179.200-17 Bottom outlets.

(a) . . .

(1) The extreme projection of the bottom outlet equipment may not be more than that allowed by Appendix E of the AAR Specifications for Tank Cars. All bottom outlet reducers and closures and their attachments shall be secured to the car by at least 3/4-inch chain, or its equivalent, except that the bottom outlet closure plugs may be attached by 1/4-inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve shall be closed by a plug, cap, or approved quick coupling device. The bottom outlet equipment should include only the valve, reducers and closures that are necessary for the attachment of unloading fixtures. The permanent attachment of supplementary exterior fittings shall be approved by the AAR Committee on Tank Cars.

(6) To provide for the attachment of unloading connections, the discharge end of the bottom outlet nozzle or reducer, the valve body of the exterior valve, or some fixed attachment thereto, shall be provided with one of the following arrangements or an approved

modification thereof. (See Appendix E, Fig. E17 of the AAR Specifications for Tank Cars for illustrations of some of the possible arrangements.)

(i) A bolted flange closure arrangement including a minimum 1-inch NPT pipe plug (see Fig. E17.1) or including an auxiliary valve with a threaded closure.

(ii) A threaded cap closure arrangement including a minimum 1-inch NPT pipe plug (see Fig. E17.2) or including an auxiliary valve with a threaded closure.

(iii) A quick-coupling device using a threaded plug closure of at least 1-inch NPT or having a threaded cap closure with a minimum 1-inch NPT pipe plug (see Fig. E17.3 through E17.5). A minimum 1-inch auxiliary test valve with a threaded closure may be substituted for the 1-inch pipe plug (see Fig. E17.6). If the threaded cap closure does not have a pipe plug or integral auxiliary test valve, a minimum 1-inch NPT pipe plug shall be installed in the outlet nozzle above the closure (see Fig. E17.7).

(iv) A two-piece quick-coupling device using a clamped dust cap must include an in-line auxiliary valve, either integral with the quick-coupling device or located between the primary bottom outlet valve and the quick-coupling device. The quick-coupling device closure dust cap or outlet nozzle shall be fitted with a minimum 1-inch NPT closure (see Fig. E17.8 and E17.9).

(7) If the outlet nozzle extends 8 inches or more from the shell of the tank, a V-shaped breakage groove shall be cut (not cast) in the upper part of the outlet nozzle at a point immediately below the lowest part of valve closest to the tank. In no case may the nozzle wall thickness at the root of the "V" be more than 1/4 inch. The outlet nozzle on interior valves or the valve body on exterior valves may be steam jacketed, in which case the breakage groove or its equivalent must be below the steam chamber but above the bottom of center sill construction. If the outlet nozzle is not a single piece, or if exterior valves are applied, provisions shall be made for the equivalent of the breakage groove. On cars without continuous center sills, the breakage groove or its equivalent must be no more than 15 inches below the tank shell. On cars with continuous center sills, the breakage groove or its equivalent must be above the bottom of the center sill construction.

(b) . . .

(1) The extreme projection of the bottom washout equipment may not be more than that allowed by Appendix E

of the AAR Specifications for Tank Cars.

(9) If the washout nozzle extends 8 inches or more from the shell of the tank, a V-shaped breakage groove shall be cut (not cast) in the upper part of the nozzle at a point immediately below the lowest part of the inside closure seat or plug. In no case may the nozzle wall thickness at the root of the "V" be more than 1/4 inch. Where the nozzle is not a single piece, provisions shall be made for the equivalent of the breakage groove. The nozzle must be of a thickness to insure that accidental breakage will occur at or below the "V" groove or its equivalent. On cars without continuous center sills, the breakage groove or its equivalent may not be more than 15 inches below the outer shell. On cars with continuous center sills, the breakage groove or its equivalent must be above the bottom of the center sill construction.

73. In § 179.202, § 179.202-8, § 179.202-11, and § 179.202-16 are revised to read as follows:

§ 179.202 Special commodity requirements for non-pressure tank car tanks.

§ 179.202-8 Chloroacetyl chloride.

Tank cars used to transport chloroacetyl chloride must have a nickel cladding with a minimum thickness of 1/16 inch. Nickel cladding in tanks must be low carbon nickel in accordance with ASTM B182-80. Specification DOT-103ANW tank car tanks used to transport chloroacetyl chloride shall be fabricated or solid nickel at least 95 percent pure and containing not more than 1 percent iron. Metal test coupons for welding procedure qualification must contain not more than 1 percent iron. All cast metal parts of the tank in contact with the lading must have a minimum nickel content of 96.7 percent.

§ 179.202-11 Phosphorus oxybromide, phosphorus oxychloride, phosphorus trichloride, and thiophosphoryl chloride.

Specification 103ANW tank cars used to transport phosphorus oxybromide, phosphorus oxychloride, phosphorus trichloride, and thiophosphoryl chloride, shall be fabricated of solid nickel at least 95 percent pure and containing not more than 1 percent iron. Metal test coupon for welding procedure qualification must contain not more than 1 percent iron. All cast metal parts of the tank in contact with the lading must have a minimum nickel content of approximately 96.7 percent. Specification 103A tank cars used to transport phosphorus oxybromide, phosphorus oxychloride, thiophosphoryl

chloride must be lead-lined steel, or made of steel with a nickel cladding of at least 10 percent of the shell thickness. Specifications 103AW, 111A100F2, or 111A60W2 tank cars used to transport phosphorus oxybromide, phosphorus oxychloride, thiophosphoryl chloride must be lead-lined steel or made of steel with a minimum thickness of nickel cladding of 1/8-inch. Nickel cladding must be low carbon nickel in accordance with ASTM B162-80. Specification 103EW tank cars used to transport phosphorus trichloride and thiophosphoryl chloride must have tanks fabricated from Type 316 stainless steel. Unlined Specification 103A, 103AW, 111A100F2, or 111A100W2 tank cars are authorized for phosphorus trichloride only.

§ 179.202-16 Chloroacetic acid, liquid.

(a) Tank cars used to transport chloroacetic acid, liquid, must have tanks with nickel cladding of at least 20 percent of the shell thickness. Nickel cladding in tanks must be low carbon nickel in accordance with ASTM B162-80.

(b) Chloroacetic acid, anhydrous, when shipped as a liquid, shall be shipped in Specification 103ANW tank car tanks fabricated of nickel containing not more than 1 percent iron, or in Specification 103AW or 111A60W2 tank car tanks with nickel cladding of at least 20 percent of the shell thickness, or be provided with a suitable corrosion resistant coating or lining. Metal test coupons for welding procedure qualification must contain not more than 1 percent iron. Nickel cladding in tanks must be low carbon nickel in accordance with ASTM B162-80.

74. In § 179.220, § 179.220-1 is revised; § 179.220-7 paragraphs (b), (c), (d), and (e) are amended by changing the heading in each Table; § 179.220-18, paragraphs (a)(1), (a)(6), (b)(1), and (b)(3) are revised and in § 179.220-19, the last sentence of paragraph (c) is revised to read as follows:

§ 179.220 General specifications applicable to nonpressure tank car tanks consisting of an inner container supported within an outer shell (Class DOT-115).

§ 179.220-1 Tanks built under these specifications must meet the requirements of § 179.220, § 179.221, and § 179.222. **§ 179.220-7 Materials.**

(b) . . .

Specifications	Minimum tensile strength (p.s.i.) welded condition ¹	Minimum elongation in 2 inches (percent) weld metal (longitudinal)

(c) . . .

Specifications	Minimum tensile strength (p.s.i.) welded condition ¹	Minimum elongation in 2 inches (percent) weld metal (longitudinal)

(d) . . .

Specifications	Minimum tensile strength (p.s.i.) welded condition ¹	Minimum elongation in 2 inches (percent) weld metal (longitudinal)

(e) . . .

Specifications	Minimum tensile strength (p.s.i.) welded condition ¹	Minimum elongation in 2 inches (percent) weld metal (longitudinal)

§ 179.220-18 Bottom outlets.

(a) . . .

(1) The extreme projection of the bottom outlet equipment may not be more than that allowed by Appendix E of the AAR Specifications for Tank Cars. All bottom outlet reducers and closures and their attachments shall be secured to car by at least 3/4-inch chain, or its equivalent, except that bottom outlet closure plugs may be attached by 1/4-inch chain. When the bottom outlet closure is of the combination cap and valve type, the pipe connection to the valve shall be closed by a plug, or cap. The bottom outlet equipment should include only the valve, reducers and closures that are necessary for the attachment of

unloading fixtures. The permanent attachment of supplementary exterior fittings shall be approved by the AAR Committee on Tank Cars.

(6) If outlet nozzle and its closure extends below the bottom of the outer shell, a V-shaped breakage groove shall be cut (not cast) in the upper part of the outlet nozzle at a point immediately below the lowest part of the valve closest to the tank. In no case may the nozzle wall thickness at the root of the "V" be more than 1/8-inch. The outlet nozzle or the valve body may be steam jacketed, in which case the breakage groove or its equivalent must be below the steam chamber but above the bottom of the center sill construction. If the outlet nozzle is not a single piece or its exterior valves are applied, provision shall be made for the equivalent of the breakage groove. On cars without continuous center sills, the breakage groove or its equivalent may not be more than 15 inches below the outer shell. On cars with continuous center sills, the breakage groove or its equivalent must be above the bottom of the center sill construction.

(b) . . .

(1) The extreme projection of the bottom washout equipment may not be more than that allowed by Appendix E of the AAR Specifications for Tank Cars.

(3) If washout nozzle extends below the bottom of the outer shell, a V-shaped breakage groove shall be cut (not cast) in the upper part of the nozzle at a point immediately below the lowest part of the inside closure seat or plug. In no case may the nozzle wall thickness at the root of the "V" be more than 1/8-inch. Where the nozzle is not a single piece, provisions shall be made for the equivalent of the breakage groove. The nozzle must be of a thickness to insure that accidental breakage will occur at or below the "V" groove or its equivalent. On cars without a continuous center sill, the breakage groove or its equivalent may not be more than 15 inches below the outer shell. On cars with continuous center sills, the breakage groove or its equivalent must be above the bottom of the center sill construction.

§ 179.220-19 Safety relief devices.

(c) . . . Except for tanks for

chloroprene (see § 179.222-1), tanks equipped with vents shall be stenciled "Not for flammable liquids".

75. In § 179.221-1, is amended by adding an entry at the end of the Table to read as follows:

§ 179.221 Individual specification requirements applicable to tank car tanks consisting of an inner container supported within an outer shell.

§ 179.221-1 Individual specification requirements.

Specification	115A80W1	115A80ALW	115A80WS
Special reference	§ 179.222-1		§ 179.222-1

76. Sections 179.222 and 179.222-1 are added to read as follows:

§ 179.222 Special commodity requirements for DOT 115A tank car tanks.

In addition to § 179.220 and § 179.221 the following requirements are applicable.

§ 179.222 Chloroprene.

DOT 115A tank car tanks used to transport chloroprene shall be equipped with a safety vent of a diameter not less than 12 inches complying with § 179.221-1 instead of a safety relief valve. The outer shell shall be stenciled "CHLOROPRENE" on both sides in letters not less than four inches high.

77. In § 179.301 and Table in paragraph (a) is revised to read as follows:

§ 179.301 Individual specification requirements for multi-unit tank car tanks.

(a) * * *

DOT specification	106A500-X	106A800-X	110A500-W	110A800-W	110A800-W	110A1000-W
Bursting pressure, p.s.i. (see § 179.300-5)	(¹) 1½ ₂	(¹) 1½ ₂	1250 1½ ₂	1500 ¾	2000 1½ ₂	2500 1½ ₂
Minimum thickness shell, inches	500	800	500	800	800	1000
Test pressure, p.s.i. (see § 179.300-16)						
Safety relief devices, p.s.i. (see § 179.300-15)	375	800	375	450	600	700
Start-to-discharge, or burst maximum, p.s.i.	300	480	300	380	480	650
Vapor-tight, minimum p.s.i.						

¹ None specified.

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M. Cynthia Douglas,
Administrator, Research and Special Programs Administration.

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