

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

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

[Docket No. RSPA-03-15574 (HM-189U)]

RIN 2137-AD83

**Hazardous Materials: Matter Incorporated by Reference**

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

**ACTION:** Final rule.

**SUMMARY:** This final rule amends the Hazardous Materials Regulations (HMR) to standardize the format used to cross-reference consensus standards published by nationally and internationally recognized standard-setting organizations and industry that are incorporated by reference into the HMR. In addition, this rule adds missing cross-references and removes unnecessary cross-references in the HMR. The amendments contained in this rule are minor editorial changes and impose no new requirements.

**DATES:** *Effective date:* January 1, 2004.

*Incorporation by Reference Date:* The incorporation by reference of the publications listed in this final rule has been approved by the Director of the Federal Register as of January 1, 2004.

**FOR FURTHER INFORMATION CONTACT:** Eileen Edmonson, Office of Hazardous Materials Standards, (202) 366-8553, Research and Special Programs Administration, U.S. Department of Transportation, 400 Seventh Street, SW., Washington, DC 20590-0001.

**SUPPLEMENTARY INFORMATION:****I. Background**

The Research and Special Programs Administration (RSPA, we, us) references certain consensus standards, specifications, and recommended practices developed by nationally and internationally recognized standard-setting organizations and the hazardous materials industry to establish certain requirements in the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). This practice, known as incorporation by reference, allows us to incorporate the provisions of widely accepted technical standards into the regulations and to reduce the volume of material published in the **Federal Register**. The legal effect of incorporation by reference is that the referenced provisions are treated as if they were published in the **Federal Register** and in the HMR. As with any

other requirements appearing in regulations, the incorporated provisions have the force and effect of law.

The Office of the Federal Register's (OFR's) regulations, at 1 CFR Part 51, govern how RSPA and other Federal agencies may incorporate various documents by reference. These regulations require agencies to obtain approval from the Director of the Federal Register for each publication incorporated by reference. Incorporation by reference of a publication is limited to the specific edition approved by the OFR. In the HMR, § 171.7 contains a complete listing of the source and name of each publication approved by the OFR regulations.

The OFR requires an agency to use the words "incorporated by reference" in the language incorporating a publication. The HMR incorporate by reference more than 100 publications and contain hundreds of references to these publications. For conciseness, we are using the wording "IBR, see § 171.7 of this subchapter" in the language incorporating a publication. This wording appears the first time a publication is referenced in a particular section. Some sections in the HMR currently contain multiple references to the same publication. These repeated references when they appear in the same section are being removed in this final rule.

In an earlier final rule (RSPA Docket No. 02-13658 (HM-215E), 68 FR 1013, January 8, 2003), we revised § 171.7 to incorporate by reference the 2002 edition of International Maritime Dangerous Goods Code (IMDG Code), including Amendment 31. We also authorized the continued use of the 2000 edition of the IMDG Code, including Amendment 30, until January 1, 2004. We are removing the reference to the 2000 edition of the IMDG Code in this final rule.

The rule also contains minor editorial corrections (*e.g.*, incomplete section references, and typographical and punctuation errors), and certain other minor adjustments to enhance the clarity of the HMR.

Because these amendments impose no new requirements, notice and public comment procedures are unnecessary. In addition, making these amendments effective without the customary 30-day delay following publication will allow the changes to appear in the next revision of 49 CFR.

**II. Rulemaking Analyses and Notices****A. Executive Order 12866 and DOT Regulatory Policies and Procedures**

This final rule is not considered a significant regulatory action under section 3(f) of Executive Order 12866 and, therefore, was not reviewed by the Office of Management and Budget. This rule is not significant under the Regulatory Policies and Procedures of the Department of Transportation (44 FR 11034). Because of the minimal economic impact of this rule, preparation of a regulatory impact analysis or a regulatory evaluation is not warranted.

**B. Executive Order 13132**

This final rule has been analyzed in accordance with the principles and criteria in Executive Order 13132 ("Federalism"). This final rule does not propose any regulation that: (1) Has substantial direct effects on the States, the relationship between the national government and the States, or the distribution of power and responsibilities among the various levels of government; (2) imposes substantial direct compliance costs on State and local governments; or (3) preempts State law.

RSPA is not aware of any State, local, or Indian tribe requirements that would be preempted by correcting editorial errors and making minor regulatory changes. This final rule does not have sufficient federalism impacts to warrant the preparation of a federalism assessment.

**C. Executive Order 13175**

This rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13175 ("Consultation and Coordination with Indian Tribal Governments"). Because this rule does not have tribal implications and does not impose substantial direct compliance costs, the funding and consultation requirements of Executive Order 13175 do not apply.

**D. Regulatory Flexibility Act**

I certify that this final rule will not have a significant economic impact on a substantial number of small entities. This rule makes minor editorial changes that will not impose any new requirements on persons subject to the HMR; thus, there are no direct or indirect adverse economic impacts for small units of government, businesses or other organizations.

*E. Unfunded Mandates Reform Act of 1995*

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

*F. Paperwork Reduction Act*

There are no new information collection requirements in this final rule.

*G. Regulation Identifier Number (RIN)*

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

**List of Subjects**

*49 CFR Part 171*

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

*49 CFR Part 172*

Education, Hazardous materials transportation, Hazardous waste,

Incorporation by reference, Labeling, Markings, Packaging and containers, Reporting and recordkeeping requirements.

*49 CFR Part 173*

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

*49 CFR Part 174*

Hazardous materials transportation, Incorporation by reference, Radioactive materials, Railroad safety.

*49 CFR Part 175*

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

*49 CFR Part 176*

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

*49 CFR Part 177*

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

*49 CFR Part 178*

Hazardous materials transportation, Incorporation by reference, Motor

vehicle safety, Packaging and containers, Reporting and recordkeeping requirements.

*49 CFR Part 179*

Hazardous materials transportation, Incorporation by reference, Railroad safety, Reporting and recordkeeping requirements.

*49 CFR Part 180*

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

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

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

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

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

**§ 171.7 [Amended]**

■ 2. In § 171.7, the table in paragraph (a)(3) is revised and the table in paragraph (b) is amended by adding an entry in the appropriate alphabetical order to read as follows:

**§ 171.7 Referenced material.**

(a) \* \* \*

(3) *Table of material incorporated by reference.* \* \* \*

Source and name of material	49 CFR reference
<i>Air Transport Association of America</i> , 1301 Pennsylvania Avenue, N.W., Washington, DC 20004–1707: ATA Specification No. 300 Packaging of Airline Supplies, Revision 19, July 31, 1996.	172.102.
<i>The Aluminum Association</i> , 420 Lexington Avenue, New York, NY 10017: Aluminum Standards and Data, Seventh Edition, June 1982 .....	172.102; 178.65.
<i>American National Standards Institute, Inc.</i> , 25 West 43rd Street, New York, NY 10036: ANSI/ASHRAE 15–94, Safety Code for Mechanical Refrigeration .. ANSI B16.5–77, Steel Pipe Flanges, Flanged Fittings .....	173.306; 173.307. 178.360–4.
ANSI N14.1 Uranium Hexafluoride—Packaging for Transport, 1971, 1982, 1987, 1990, 1995 and 2001 Editions.	173.417; 173.420.
<i>American Petroleum Institute</i> , 1220 L Street, NW, Washington, D.C. 20005–4070: API Recommended Practice Closures of Underground Petroleum Storage Tanks, 3rd Edition, March 1996.	1604172.102.
<i>American Pyrotechnics Association (APA)</i> , P.O. Box 213, Chestertown, MD 21620: APA Standard 87–1, Standard for Construction and Approval for Transportation of Fireworks, Novelties, and Theatrical Pyrotechnics, December 1, 2001 version.	173.56.
<i>American Society of Mechanical Engineers</i> , ASME International, 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007–2900:	

Source and name of material	49 CFR reference
ASME Code, Sections II (Parts A and B), V, VIII (Division 1), and IX of 1998 Edition of American Society of Mechanical Engineers Boiler and Pressure Vessel Code.	172.102; 173.24b; 173.32; 173.306; 173.315; 173.318; 173.420; 178.245-1; 178.245-3; 178.245-4; 178.245-6; 178.245-7; 178.255-1; 178.255-2; 178.255-14; 178.255-15; 178.270-2; 178.270-3; 178.270-7; 178.270-9; 178.270-11; 178.270-12; 178.271-1; 178.272-1; 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>American Society for Testing and Materials</i> , 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 A 20/A 20M-93a Standard Specification for General Requirements for Steel Plates for Pressure Vessels.	178.337-2; 179.102-4; 179.102-1; 179.102-17.
ASTM A 47-68 Malleable Iron Castings .....	179.200-15.
ASTM A 240/A 240M-99b Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels.	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.
ASTM A 242-81 Standard Specification for High-Strength Low-Alloy Structural Steel.	178.338-2.
ASTM A 262-93a Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels.	179.100-7; 179.200-7; 179.201-4.
ASTM A 285-78 Pressure Vessel Plates, Carbon Steel, Low- and Intermediate-Tensile Strength.	179.300-7.
ASTM A 300-58 Steel Plates for Pressure Vessels for Service at Low Temperatures.	178.337-2.
ASTM A 302/A 302M-93 Standard Specification for Pressure Vessel Plates, Alloy Steel, Manganese-Molybdenum and Manganese-Molybdenum Nickel.	179.100-7; 179.200-7; 179.220-7.
ASTM A 333-67 Seamless and Welded Steel Pipe for Low-Temperature Service.	178.45.
ASTM A 370-94 Standard Test 179.102-1; 179.102-4; Methods and Definitions for Mechanical Testing of Steel Products.	179.102-17.
ASTM A 441-81 Standard Specification for High-Strength Low-Alloy Structural Manganese Vanadium Steel.	178.338-2.
ASTM A 514-81 Standard Specification for High-Yield Strength Quenched and Tempered Alloy Steel Plate, Suitable for Welding.	178.338-2.
ASTM A 515/A 515M-03 Standard Specification for Pressure Vessel Plates, Carbon Steel, for Intermediate- and Higher-Temperature Service.	179.300-7.
ASTM A 516/A 516M-90 Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate and Lower-Temperature Service.	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.
ASTM A 537/A 537M-91 Standard Specification for Pressure Vessel Plates, Heat-Treated, Carbon-Manganese-Silicon Steel.	179.100-7; 179.102-4; 179.102-17.
ASTM A 572-82 Standard Specification for High-Strength Low-Alloy Columbian-Vanadium Steels of Structural Quality.	178.338-2.
ASTM A 588-81 Standard Specification for High-Strength Low-Alloy Structural Steel with 50 Ksi Minimum Yield Point to 4 in. Thick.	178.338-2.
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).	178.338-2.
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.	178.338-2.
ASTM A 612-72a High Strength Steel Plates for Pressure Vessels for Moderate and Lower Temperature Service.	178.337-2.
ASTM A 633-79a Standard Specification for Normalized High-Strength Low-Alloy Structural Steel, 1979 Edition.	178.338-2.
ASTM A 715-81 Standard Specification for Steel Sheet and Strip, Hot-Rolled, High-Strength, Low-Alloy with Improved Formability, 1981.	178.338-2.
ASTM B 162-93a Standard Specification for Nickel Plate, Sheet, and Strip.	173.249; 179.200-7.
ASTM B 209-93 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.	179.100-7; 179.200-7; 179.220-7.
ASTM B 221-76 Aluminum Alloy Extruded Bars, Rods, Shapes, and Tubes.	178.46.

Source and name of material	49 CFR reference
ASTM B 557–84 Tension Testing Wrought and Cast Aluminum and Magnesium-Alloy Products.	178.46.
ASTM B 580–79 Standard Specification for Anodic Oxide Coatings on Aluminum, (Re-approved 2000).	173.316; 173.318; 178.338–17.
ASTM D 1238–90b Standard Test Method for Flow Rates of Thermoplastics for Extrusion Plastometer.	173.225.
ASTM D 1709–01 Standard Text Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method.	173.197.
ASTM D 1835–97 Standard Specification for Liquefied Petroleum (LP) Gases.	180.209.
ASTM D 1838–64 Copper Strip Corrosion by Liquefied Petroleum (LP) Gases.	173.315.
ASTM D 1922–00a Standard Test Method for Propagation Tear Resistance of Plastic Film and Thin Sheeting by Pendulum Method.	173.197.
ASTM D 4206–96 Standard Test Method for Sustained Burning of Liquid Mixtures Using the Small Scale Open-Cup Apparatus.	173.120.
ASTM D 4359–90 Standard Test Method for Determining Whether a Material is a Liquid or a Solid.	171.8.
ASTM E 8–99 Standard Test Methods for Tension Testing of Metallic Materials.	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.
ASTM E 23–98 Standard Test Methods for Notched Bar Impact Testing of Metallic Materials.	178.57.
ASTM E 112–88 Standard Test Methods for Determining Average Grain Size.	178.44.
ASTM E 112–96 Standard Test Methods for Determining Average Grain Size, 1996 Edition.	178.274; Part 178, appendix A.
ASTM E 114–95 Standard Practice for Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method.	178.45.
ASTM E 213–98 Standard Practice for Ultrasonic Examination of Metal Pipe and Tubing.	178.45.
<i>American Water Works Association</i> , 1010 Vermont Avenue, N.W., Suite 810, Washington, DC 20005:	
AWWA Standard C207–55, Steel Pipe Flanges, 1955 .....	178.360–4.
<i>American Welding Society</i> , 550 N.W. Le Jeune Road, Miami, Florida 33126:	
AWS Code B 3.0; Standard Qualification Procedure; 1972 (FRB 3.0–41, rev. May 1973).	178.356–2, 178.358–2.
AWS Code D 1.0; Code for Welding in Building Construction (FR D 1.0–66, 1966).	178.356–2; 178.358–2.
<i>Association of American Railroads</i> , American Railroads Building, 50 F Street, NW., Washington, DC 20001:	
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; 174.63; 179.6; 179.7; 179.15; 179.16; 179.20; 179.22; 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; 180.509; 180.513; 180.515; 180.517.
AAR Manual of Standards and Recommended Practices, Section I, Specially Equipped Freight Car and Intermodal Equipment, 1988.	174.55; 174.63.
AAR Specifications for Design, Fabrication and Construction of Freight Cars, Volume 1, 1988.	179.16.
<i>Chlorine Institute, Inc.</i> , 2001 L Street, NW., Suite 506, Washington, DC 20036:	
Chlorine Institute Emergency Kit “A” for 100-lb. & 150-lb. Chlorine Cylinders (with the exception of repair method using Device 8 for side leaks), Edition 9, June 2000.	173.3.
Chlorine Institute Emergency Kit “B” for Chlorine Ton Containers (with the exception of repair method using Device 9 for side leaks) Edition 8, June 1996.	173.3.
Type 1½ JQ 225, Dwg., H51970, Revision D, April 5, 1989; or Type 1½ JQ 225, Dwg. H50155, Revision F, April 4, 1989.	173.315.
Section 3, Pamphlet 57, Emergency Shut-Off Systems for Bulk Transfer of Chlorine, 3rd Edition, October 1997.	177.840.
Standard Chlorine Angle Valve Assembly, Dwg. 104–8, July 1993	178.337–9.
Excess Flow Valve with Removable Seat, Dwg. 101–7, July 1993	178.337–8.
Excess Flow Valve with Removable Basket, Dwg. 106–6, July 1993.	178.337–8.

Source and name of material	49 CFR reference
Standards for Housing and Manway Covers for Steel Cargo Tanks, Dwgs. 137-1 and 137-2, September 1, 1982. <i>Compressed Gas Association, Inc.</i> , 4221 Walney Road, 5th Floor, Chantilly, Virginia 20151:	178.337-10.
CGA Pamphlet C-3, Standards for Welding on Thin-Walled Steel Cylinders, 1994.	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.
CGA Pamphlet C-5, Cylinder Service Life—Seamless Steel High Pressure Cylinders, 1991.	173.302a.
CGA Pamphlet C-6, Standards for Visual Inspection of Steel Compressed Gas Cylinders, 1993.	173.198; 180.205; 180.209; 180.211; 180.411; 180.519.
CGA Pamphlet C-6.1, Standards for Visual Inspection of High Pressure Aluminum Compressed Gas Cylinders, 1995.	180.205; 180.209.
CGA Pamphlet C-6.2, Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders, 1996, Third Edition.	180.205.
CGA Pamphlet C-6.3, Guidelines for Visual Inspection and Requalification of Low Pressure Aluminum Compressed Gas Cylinders, 1991.	180.205; 180.209.
CGA Pamphlet C-7, A Guide for the Preparation of Precautionary Markings for Compressed Gas Containers, appendix A, issued 1992 (6th Edition).	172.400a.
CGA Pamphlet C-8, Standard for Requalification of DOT-3HT Cylinder Design, 1985.	180.205; 180.209.
CGA Pamphlet C-11, Recommended Practices for Inspection of Compressed Gas Cylinders at Time of Manufacture, 2001, Third Edition.	178.35.
CGA Pamphlet C-12, Qualification Procedure for Acetylene Cylinder Design, 1994.	173.301; 173.303; 178.59; 178.60.
CGA Pamphlet C-13, Guidelines for Periodic Visual Inspection and Requalification of Acetylene Cylinders, 2000, Fourth Edition.	173.303; 180.205; 180.209.
CGA Pamphlet C-14, Procedures for Fire Testing of DOT Cylinder Pressure Relief Device Systems, 1979.	173.301; 173.323.
CGA Pamphlet G-2.2 Tentative Standard Method for Determining Minimum of 0.2% Water in Anhydrous Ammonia, 1985.	173.315.
CGA Pamphlet G-4.1, Cleaning Equipment for Oxygen Service, 1985.	178.338-15.
CGA Pamphlet P-20, Standard for the Classification of Toxic Gas Mixtures, 1995.	173.115.
CGA Pamphlet S-1.1, Pressure Relief Device Standards—Part 1—Cylinders for Compressed Gases, 2001 (with the exception of paragraph 9.1.1.1), Ninth Edition.	173.301; 173.304a.
CGA Pamphlet S-1.2, Safety Relief Device Standards Part 2—Cargo and Portable Tanks for Compressed Gases, 1980.	173.315; 173.318; 178.276; 178.277.
CGA Pamphlet S-7, Method for Selecting Pressure Relief Devices for Compressed Gas Mixtures in Cylinders, 1996.	173.301.
CGA Technical Bulletin TB-2, Guidelines for Inspection and Repair of MC-330 and MC-331 Cargo Tanks, 1980.	180.407; 180.413.
<i>Department of Defense (DOD)</i> , 2461 Eisenhower Avenue, Alexandria, VA 22331:	
DOD TB 700-2; NAVSEAINST 8020.8B; AFTO 11A-1-47; DLAR 8220.1: Explosives Hazard Classification Procedures, January 1998.	173.56.
<i>Department of Energy (USDOE)</i> , 100 Independence Avenue SW., Washington, DC 20545:	
USDOE publications available from: Superintendent of Documents, Government Printing Office (GPO) or The National Technical Information Service (NTIS).	
USDOE, CAPE-1662, Revision 1, and Supplement 1, Civilian Application Program Engineering Drawings, April 6, 1988.	178.356-1; 178.356-2; 178.358-1; 178.358-2; 178.358-3; 178.358-4.
USDOE, Material and Equipment Specification No. SP-9, Rev. 1, and Supplement—Fire Resistant Phenolic Foam, March 28, 1968.	178.356-2; 178.358-2.
USDOE, ORO 651—Uranium Hexafluoride; A Manual of Good Practices, Revision 6, 1991 edition.	173.417.
USDOE, KSS-471, November 30, 1986—Proposal for Modifications to U.S. Department of Transportation Specification 21PF-1, Fire and Shock Resistant Phenolic Foam—Insulated Metal Overpack.	178.358-1; 178.358-3.
<i>General Services Administration</i> , Specification Office, Room 6662, 7th and D Street, S.W., Washington, DC 20407:	
Federal Specification RR-C-901C, Cylinders, Compressed Gas: High Pressure Steel DOT 3AA, and Aluminum Applications, January 15, 1981 (Superseding RR-C-901B, August 1, 1967).	173.302; 173.336; 173.337.

Source and name of material	49 CFR reference
<p><i>Institute of Makers of Explosives</i>, 1120 19th Street NW., Suite 310, Washington, DC 20036-3605:</p>	
<p>IME Safety Library Publication No. 22 (IME Standard 22), Recommendation for the Safe Transportation of Detonators in a Vehicle with Certain Other Explosive Materials, May 1993.</p>	173.63; 177.835.
<p><i>International Atomic Energy Agency (IAEA)</i>, P.O. Box 100, Wagramer Strasse 5, A-1400 Vienna, Austria:</p>	
<p>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.</p>	
<p>IAEA, Regulations for the Safe Transport of Radioactive Material, No. TS-R-1, 1996 Edition (Revised), (ST-1, Revised).</p>	171.12.
<p>IAEA, Regulations for the Safe Transport of Radioactive Material, Safety Series No. 6, 1985 Edition (as Amended 1990).</p>	171.12; 173.415; 173.416; 173.417; 173.473.
<p><i>International Civil Aviation Organization (ICAO)</i>, P.O. Box 400, Place de l'Aviation Internationale, 1000 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2R2:</p>	
<p>ICAO Technical Instructions available from: INTEREG, International Regulations, Publishing and Distribution Organization, P.O. Box 60105, Chicago, IL 60660.</p>	
<p>Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), DOC 9284-AN/905, 2003-2004 Edition, including Erratum.</p>	171.8; 171.11; 172.202; 172.401; 172.512; 172.602; 173.320; 175.33; 178.3.
<p><i>International Maritime Organization (IMO)</i>, 4 Albert Embankment, London, SE17SR, United Kingdom or New York Nautical Instrument &amp; Service Corporation, 140 West Broadway, New York, NY 10013:</p>	
<p>International Convention for the Safety of Life at Sea, (SOLAS) Amendments 2000, Chapter II-2/Regulation 19, 2001.</p>	176.63.
<p>International Maritime Dangerous Goods (IMDG) Code, 2002 Edition, including Amendment 31-02 (English Edition).</p>	171.12; 172.202; 172.401; 172.502; 172.602; 173.21; 176.2; 176.5; 176.11; 176.27; 176.30, 178.3.
<p><i>International Organization for Standardization</i>, Case Postale 56, CH-1211, Geneve 20, Switzerland:</p>	
<p>Also available from: ANSI 25 West 43rd Street, New York, NY 10036</p>	
<p>ISO 82-74(E) Steels Tensile Testing .....</p>	178.270-3.
<p>ISO 535-1991(E) Paper and board—Determination of water absorptiveness—Cobb method.</p>	178.516; 178.707; 178.708.
<p>ISO 1496-3-1995(E)—Series Freight Containers—Specification and Testing—Part 3: Tank Containers for Liquids, Gases and Pressurized Dry Bulk March 1, 1995, Fourth Edition.</p>	1173.411; 178.274.
<p>ISO 2431-1984(E) Standard Cup Method .....</p>	173.121.
<p>ISO 2592-1973(E) Petroleum products—Determination of flash and fire points—Cleveland open cup method.</p>	173.120.
<p>ISO 2919-1980(E)—Sealed radioactive sources—Classification ....</p>	173.469.
<p>ISO 3036-1975(E) Board—Determination of puncture resistance ...</p>	178.708.
<p>ISO 3574-1986(E) Cold-reduced carbon steel sheet of commercial and drawing qualities.</p>	178.503; Part 178, appendix C.
<p>ISO 4126-1 Safety valves—Part 1: General Requirements, December 15, 1991, First Edition.</p>	178.274.
<p>ISO/TR 4826-1979(E)—Sealed radioactive sources—Leak test methods.</p>	173.469.
<p>ISO 6892 Metallic materials—Tensile testing, July 15, 1984, First Edition.</p>	178.274.
<p>ISO 8115 Cotton bales—Dimensions and density, 1986 Edition .....</p>	172.102.
<p><i>National Board of Boiler and Pressure Vessel Inspectors</i>, 1055 Crupper Avenue, Columbus, Ohio 43229:</p>	
<p>National Board Inspection Code, A Manual for Boiler and Pressure Vessel Inspectors, NB-23, 1992 Edition.</p>	180.413.
<p><i>National Fire Protection Association</i>, Batterymarch Park, Quincy, MA 02269:</p>	
<p>NFPA 58-Liquefied Petroleum Gas Code, 2001 Edition .....</p>	173.315.
<p><i>National Institute of Standards and Technology</i>, Department of Commerce, 5285 Port Royal Road, Springfield, VA 22151:</p>	
<p>USDC, NBS Handbook H-28 (1957), 1957 Handbook of Screw-Thread Standards for Federal Services, December 1966 Edition.</p>	179.2; 178.45; 178.46.
<p><i>Organization for Economic Cooperation and Development (OECD)</i>, OECD Publications and Information Center, 2001 L Street, N.W., Suite 700, Washington, DC 20036:</p>	
<p>OECD Guideline for Testing of Chemicals, No. 404 "Acute Dermal Irritation/Corrosion," 1992.</p>	173.137.
<p><i>Transport Canada</i>, TDG Canadian Government Publishing Center, Supply and Services, Canada, Ottawa, Ontario, Canada K1A 0S9:</p>	

Source and name of material	49 CFR reference
Transportation of Dangerous Goods Regulations (TDG Regulations), 1 July 1985, SOR/85/77, incorporating the following Registration Numbers: SOR/85-314, SOR/85-585, SOR/85-609, SOR/86-526, SOR/87-186, SOR/87-335, SOR/88-635, SOR/89-39, SOR/89-294, SOR/90-847, SOR/91-711, SOR/91-712, SOR/92-447, SOR/92-600, SOR/93-203, SOR/93-274, SOR/93-525, SOR/94-146 and SOR/94-264 (English edition), SOR/95-241, and SOR/95-547.	171.12a; 172.401; 172.502; 172.602.
<i>Truck Trailer Manufacturers Association</i> , 1020 Princess Street, Alexandria, Virginia 22314:	
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.	180.405.
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.	178.345-10; 178.346-3.
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.	180.405.
<i>United Nations</i> , United Nations Sales Section, New York, NY 10017:	
UN Recommendations on the Transport of Dangerous Goods (UN Recommendations), Twelfth Revised Edition (2001).	171.12; 172.202; 172.401; 172.502; 173.22; 173.24; 173.24b; 173.197; Part 173, appendix H; 178.274; 178.801.
UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria (UN Manual of Tests and Criteria), Third Revised Edition (1999).	172.102; 173.21; 173.56; 173.57; 173.58; 173.124; 173.125; 173.127; 173.128; 173.185.

(b) \* \* \*

Source and name of material	49 CFR reference
* * * * *	
<i>American Society for Testing and Materials</i> , 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
* * * * *	

\* \* \* \* \*

■ 3. In § 171.8, the definitions for “Competent Authority,” “Liquid,” “Liquid phase,” “NPT,” “UN Recommendations,” and “UN standard packaging” are revised to add the parenthetical phrase “(IBR, see § 171.7),” and a definition for “Incorporated by reference or IBR” is added, to read as follows:

**§ 171.8 Definitions and abbreviations.**

\* \* \* \* \*

*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.

*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.

\* \* \* \* \*

*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 “Standard Test Method for Determining Whether a Material is Liquid or Solid” (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 37.8 °C (100 °F) temperature specified in ASTM D 4359 (IBR, see § 171.7).

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

\* \* \* \* \*

*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).

\* \* \* \* \*

■ 4. In § 171.10, paragraph (c)(1) is revised to read as follows:

**§ 171.10 Units of measure.**

\* \* \* \* \*

(c) \* \* \*

(1) Conversion values are provided in the following table and are based on values provided in ASTM E 380, “Standard for Metric Practice”.

\* \* \* \* \*

**§ 171.11 [Amended]**

■ 5. In § 171.11, amend the introductory paragraph by removing the parenthetical phrase “(incorporated by reference, see § 171.7)” and adding the parenthetical phrase “(IBR, see § 171.7)” in its place.

■ 6. In § 171.12, paragraphs (b) introductory text, (d) introductory text, and paragraph (e)(5) are revised to read as follows:

**§ 171.12 Import and export shipments.**

(b) *IMDG Code*. The IMDG Code (IBR, see § 171.7) sets forth descriptions, classifications, packagings, labeling and vessel stowage requirements. Notwithstanding the provisions of this subchapter, a material that is packaged, marked, classed, labeled, placarded, described, stowed and segregated, and certified (including a container packing certification, if applicable) in accordance with the IMDG Code, and otherwise conforms to the requirements of this section, may be offered and accepted for transportation and transported within the United States. The following conditions and limitations apply:

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

(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.

■ 7. In § 171.12a, paragraph (b) introductory text is revised to read as follows:

**§ 171.12a Canadian shipments and packagings.**

(b) *Conditions and limitations*. Notwithstanding the requirements of parts 172, 173, and 178 of this subchapter, and subject to the limitations of paragraph (a) of this section, a hazardous material that is classed, marked, labeled, placarded, described on a shipping paper, and packaged in accordance with the Transportation of Dangerous Goods (TDG) Regulations (IBR, see § 171.7) issued by the Government of Canada may be offered for transportation and transported to or through the United States by motor vehicle or rail car. The following conditions and limitations apply:

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

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

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

**PART 172—[AMENDED]**

■ 9. In Part 172, amend the following sections by removing the parenthetical phrase “(see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in each of the following places:

- 172.102(c)(1), Special provision 23
- 172.102(c)(1), Special provision 43
- 172.102(c)(1), Special provision 57
- 172.102(c)(1), Special provision 125
- 172.102(c)(1), Special provision 129
- 172.102(c)(1), Special provision 142
- 172.102(c)(7)(viii), Special provision TP6
- 172.202(e)
- 172.401(c)(1)
- 172.401(c)(3)
- 172.401(c)(4)
- 172.502(b)(1)
- 172.512(a)(3)
- 172.602(a)(1)

■ 10. In § 172.102:  
 a. In paragraph (c)(1), Special provisions 39, 44, 119, 132, 137, and 144 are revised.  
 b. In paragraph (c)(2), Special provision A52 is revised.  
 c. In paragraph (c)(3), Special provisions B13, c., and the text preceding the table in B33 are revised.

The revisions read as follows:

**§ 172.102 Special provisions.**

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

*Code/Special Provisions*

39 This substance may be carried under provisions other than those of Class 1 only if it is so packed that the percentage of water will not fall below that stated at any time during transport. When phlegmatized with water and inorganic inert material, the content of urea nitrate must not exceed 75 percent by mass and the mixture should not be capable of being detonated by test 1(a)(i) or test 1(a)(ii) in the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter).

44 The formulation must be prepared so that it remains homogenous and does not separate during transport. Formulations with low nitrocellulose contents and neither showing dangerous properties when tested for their ability to detonate, deflagrate or explode when heated under defined confinement by the appropriate test methods and criteria in the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter), nor classed as a Division 4.1 (flammable solid) when tested in accordance with the procedures specified in § 173.124 of this subchapter (chips, if necessary, crushed and sieved to a particle size of less than 1.25 mm), are not subject to the requirements of this subchapter.

119 This substance, when in quantities of not more than 11.5 kg (25.3 pounds), with not less than 10 percent water, by mass, also may be classed as Division 4.1, provided a negative test result is obtained when tested in accordance with test series 6(c) of the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter).

132 Ammonium nitrate fertilizers of this composition are not subject to the requirements of this subchapter if shown by a trough test (see UN Manual of Tests and Criteria, Part III, subsection 38.2) (IBR, see § 171.7 of this subchapter) not to be liable to self-sustaining decomposition and provided that they do not contain an excess of nitrate greater than 10% by mass (calculated as potassium nitrate).

137 Cotton, dry, is not subject to the requirements of this subchapter when it is baled in accordance with ISO 8115, “Cotton Bales—Dimensions and

Density” (IBR, see § 171.7 of this subchapter) to a density of at least 360 kg/m3 (22.4lb/ft3) and it is transported in a freight container or closed transport vehicle.

\* \* \* \* \*

144 If transported as a residue in an underground storage tank (UST), as defined in 40 CFR 180.12, that has been cleaned and purged or rendered inert according to the American Petroleum Institute (API) Standard 1604 (IBR, see § 171.7 of this subchapter), then the tank and this material are not subject to any other requirements of this subchapter. However, sediments remaining in the tank that meet the definition for a hazardous material are subject to the applicable regulations of this subchapter.

(2) \* \* \*  
Code/Special Provisions  
\* \* \* \* \*

A52 A cylinder containing Oxygen, compressed, may not be loaded into a passenger-carrying aircraft or into an inaccessible cargo location on a cargo-only aircraft unless it is placed in an overpack or outer packaging that conforms to the performance criteria of Air Transport Association (ATA) Specification No. 300 (IBR, see § 171.7 of this subchapter) for Category I shipping containers.

\* \* \* \* \*

(3) \* \* \*

\* \* \* \* \*

B13 \* \* \*

c. Packagings are excepted from the design stress limits at elevated temperatures, as described in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter). However, the design stress limits may not exceed 25 percent of the stress for 0 temper at the maximum design temperature of the cargo tank, as specified in the Aluminum Association’s “Aluminum Standards and Data” (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

B33 MC 300, MC 301, MC 302, MC 303, MC 305, MC 306, and DOT 406 cargo tanks equipped with a 1 psig normal vent used to transport gasoline must conform to Table I of this Special Provision. Based on the volatility class determined by using ASTM D 439 and the Reid vapor pressure (RVP) of the particular gasoline, the maximum lading pressure and maximum ambient temperature permitted during the loading of gasoline may not exceed that listed in Table I.

\* \* \* \* \*

■ 11. In § 172.400a, paragraph (a)(1)(iv) is revised to read as follows:

§ 172.400a Exceptions from labeling.

- (a) \* \* \*
- (1) \* \* \*
- (iv) Durably and legibly marked in accordance with CGA C-7, appendix A (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 12. In § 172.401, paragraph (c)(2) is revised to read as follows:

§ 172.401 Prohibited labeling.

- \* \* \* \* \*
- (c) \* \* \*
- (2) The IMDG Code (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

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

Authority: 49 U.S.C. 5101–5127, 44701; 49 CFR 1.45, 1.53.

PART 173—[AMENDED]

■ 14. In Part 173, amend the following sections by removing the parenthetical phrase “(incorporated by reference; see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in each of the following places:

- 173.115(c)(2)
- 173.198(a)
- 173.225(e)(3)(vi) note 173.301(c)
- 173.301(g)
- 173.304a(e)(1)(ii)

■ 15. In Part 173, amend the following sections by removing the parenthetical phrase “(incorporated by reference, see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in each of the following places:

- 173.316(a)(4)
- 173.318(a)(4)
- 173.415(d)
- 173.416(b)
- 173.417(a)(5)
- 173.417(a)(8)(i)

■ 16. In Part 173, amend the following sections by removing the parenthetical phrase “(see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in each of the following places:

- 173.21(f) introductory text
- 172.21(f)(3)(ii)
- 173.24(d)(2)
- 173.32(c)(4)(i)
- 173.185(c)(3)
- 173.185(e)(6)
- 173.469(d)(1)

■ 17. In Part 173, amend the following sections by removing the parenthetical

phrase “(incorporated by reference, see § 171.7 of this subchapter)” in each of the following places:

- 173.417(b)(4)
- 173.420(b)
- 173.420(c)
- 173.473(a)(1)

■ 18. In § 173.6, paragraph (a)(2) is revised to read as follows:

§ 173.6 Materials of trade exceptions.

- \* \* \* \* \*
- (a) \* \* \*
- (2) A Division 2.1 or 2.2 material in a cylinder with a gross weight not over 100 kg (220 pounds), or a permanently mounted tank manufactured to the ASME Code of not more than 70 gallon water capacity for a non-liquefied Division 2.2 material with no subsidiary hazard.

\* \* \* \* \*

■ 19. In § 173.22, paragraph (a)(2)(iii) is revised to read as follows:

§ 173.22 Shipper’s responsibility.

- \* \* \* \* \*
- (a) \* \* \*
- (2) \* \* \*
- (iii) National or international regulations based on the UN Recommendations (IBR, see § 171.7 of this subchapter), as authorized in § 173.24(d)(2);

\* \* \* \* \*

■ 20. In § 173.24b, paragraph (e)(2) introductory text, and paragraphs (e)(2)(i) and (e)(2)(iii) are revised to read as follows:

§ 173.24b Additional general requirements for bulk packagings.

- \* \* \* \* \*
- (e) \* \* \*
- (2) UN portable tanks manufactured outside the United States. A UN portable tank manufactured outside the United States, in accordance with national or international regulations based on the UN Recommendations (IBR, see § 171.7 of this subchapter), which is an authorized packaging under § 173.24 of this subchapter, may be filled, offered and transported in the United States, if the § 172.101 Table of this subchapter authorizes the hazardous material for transportation in the UN portable tank and it conforms to the applicable T codes, and tank provision codes, or other special provisions assigned to the hazardous material in Column (7) of the Table when manufactured in a country other than the United States. In addition, the portable tank must—

(i) Conform to applicable provisions in the UN Recommendations (IBR, see

§ 171.7 of this subchapter) and the requirements of this subpart;

\* \* \* \* \*

(iii) Be designed and manufactured according to the ASME Code (IBR, see § 171.7 of this subchapter) or a pressure vessel design code approved by the Associate Administrator;

\* \* \* \* \*

■ 21. In § 173.31, the first sentence in paragraph (b)(5) is revised to read as follows:

**§ 173.31 Use of tank cars.**

\* \* \* \* \*

(b) \* \* \*

(5) *Bottom-discontinuity protection requirements.* No person may offer for transportation a hazardous material in a tank car with bottom-discontinuity protection unless the tank car has bottom-discontinuity protection that conforms to the requirements of E9.00 and E10.00 of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 22. In § 173.32, paragraphs (c)(4) introductory text and (c)(4)(i) are revised to read as follows:

**§ 173.32 Requirements for the use of portable tanks.**

\* \* \* \* \*

(c) \* \* \*

(4) Any portable tank container constructed prior to May 15, 1950, complying with the requirements of either the ASME Code for Unfired Pressure Vessels, 1946 Edition, or the API ASME Code for Unfired Pressure Vessels, 1943 Edition, may be used for the transportation of liquefied compressed gas, provided it fulfills all the requirements of the part and specifications for the particular gas or gases to be transported. Such portable tanks must be marked "ICC Specification 51X" on the plate required by the specification, except as modified by any or all of the following:

(i) Portable tanks designed and constructed in accordance with Pars. U-68, U-69, or U-201 of the ASME Code, 1943 and 1946 editions, may be used. Portable tanks designed and constructed in accordance with Par. U-68 or Par. U-69 may be re-rated at a working pressure 25 percent in excess of the design pressure for which the portable tank was originally constructed. If the portable tank is re-rated, the re-rated pressure must be marked on the plate as follows: "Re-rated working pressure—psig".

\* \* \* \* \*

■ 23. In § 173.56, paragraphs (b)(2)(i), (b)(3)(i), (b)(4), and (j)(1) are revised to read as follows:

**§ 173.56 New explosives—definition and procedures for classification and approval.**

\* \* \* \* \*

(b) \* \* \*

(2) \* \* \*

(i) U.S. Army Technical Center for Explosives Safety (SMCAC-EST), Naval Sea Systems Command (SEA-9934), or Air Force Safety Agency (SEW), when approved by the Chairman, DOD Explosives Board, in accordance with the DOD Explosives Hazard Classification Procedures (IBR, see § 171.7 of the subchapter); or

\* \* \* \* \*

(3) \* \* \*

(i) Examined by the DOE in accordance with the DOD Explosives Hazard Classification Procedures, and must be classed and approved by DOE; or

\* \* \* \* \*

(4) For a material shipped under the description of "ammonium nitrate-fuel oil mixture (ANFO)", the only test required for classification purposes is the Cap Sensitivity Test—Test Method 5(a) prescribed in the Explosive Test Manual (UN Manual of Tests and Criteria) (IBR, see § 171.7 of the subchapter). The test must be performed by an agency listed in paragraph (b)(1), (b)(2), or (b)(3) of this section, the manufacturer, or the shipper. A copy of the test report must be submitted to the Associate Administrator before the material is offered for transportation, and a copy of the test report must be retained by the shipper for as long as that material is shipped. At a minimum, the test report must contain the name and address of the person or organization conducting the test, date of the test, quantitative description of the mixture, including prill size and porosity, and a description of the test results.

\* \* \* \* \*

(j) \* \* \*

(1) The fireworks are manufactured in accordance with the applicable requirements in APA Standard 87-1 (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

■ 24. In § 173.57, paragraph (a) introductory text is revised to read as follows:

**§ 173.57 Acceptance criteria for new explosives.**

(a) Unless otherwise excepted, an explosive substance must be subjected to the Drop Weight Impact Sensitivity Test (Test Method 3(a)(i)), the Friction

Sensitivity Test (Test Method 3(b)(iii)), the Thermal Stability Test (Test Method 3(c)) at 75 °C (167 °F) and the Small-Scale Burning Test (Test Method 3(d)(i)), each as described in the Explosive Test Manual (UN Manual of Tests and Criteria) (IBR, see § 171.7 of this subchapter). A substance is forbidden for transportation if any one of the following occurs:

\* \* \* \* \*

■ 25. In § 173.58, paragraph (a) introductory text is revised to read as follows:

**§ 173.58 Assignment of class and division for new explosives.**

(a) *Division 1.1, 1.2, 1.3, and 1.4 explosives.* In addition to the test prescribed in § 173.57 of this subchapter, a substance or article in these divisions must be subjected to Test Methods 6(a), 6(b), and 6(c), as described in the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter), for assignment to an appropriate division. The criteria for assignment of class and division are as follows:

\* \* \* \* \*

■ 26. In § 173.63, paragraph (f)(2) is revised to read as follows:

**§ 173.63 Packaging exceptions.**

(f) \* \* \*

(2) IME Standard 22 container (IBR, see § 171.7 of this subchapter) or compartment is used as the outer packaging;

\* \* \* \* \*

■ 27. In § 173.120, paragraphs (a)(3), (a)(4), and (b)(3) are revised to read as follows:

**§ 173.120 Class 3—Definitions.**

(a) \* \* \*

(3) Any liquid with a flash point greater than 35 °C (95 °F) that does not sustain combustion according to ASTM D 4206 (IBR, see § 171.7 of this subchapter) or the procedure in appendix H of this part.

(4) Any liquid with a flash point greater than 35 °C (95 °F) and with a fire point greater than 100 °C (212 °F) according to ISO 2592 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

(b) \* \* \*

(3) A combustible liquid that does not sustain combustion is not subject to the requirements of this subchapter as a combustible liquid. Either the test method specified in ASTM D 4206 or the procedure in appendix H of this part may be used to determine if a material sustains combustion when heated under

test conditions and exposed to an external source of flame.  
\* \* \* \* \*

■ 28. In § 173.121, paragraph (b)(2)(i) is revised to read as follows:

**§ 173.121 Class 3—Assignment of packing group.**

- (b) \* \* \*
- (2) \* \* \*

(i) *Viscosity test.* The flow time in seconds is determined at 23 °C (73.4 °F) using the ISO standard cup with a 4 mm (0.16 inch) jet as set forth in ISO 2431 (IBR, see § 171.7 of this subchapter). Where the flow time exceeds 100 seconds, a further test is carried out using the ISO standard cup with a 6 mm (0.24 inch) jet.  
\* \* \* \* \*

■ 29. In § 173.124, paragraph (a)(2)(iii)(C), (a)(2)(iv), (a)(3)(ii), and (a)(3)(iii) are revised to read as follows:

**§ 173.124 Class 4, Divisions 4.1, 4.2 and 4.3—Definitions.**

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

(C) Performance of the self-reactive material under the test procedures specified in the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter) and the provisions of paragraph (a)(2)(iii) of this section; and  
\* \* \* \* \*

(iv) *Tests.* The generic type for a self-reactive material must be determined using the testing protocol from Figure 14.2 (Flow Chart for Assigning Self-Reactive Substances to Division 4.1) from the UN Manual of Tests and Criteria.  
\* \* \* \* \*

- (3) \* \* \*

(ii) Show a burning rate faster than 2.2 mm (0.087 inches) per second when tested in accordance with the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter); or

(iii) Any metal powders that can be ignited and react over the whole length of a sample in 10 minutes or less, when tested in accordance with the UN Manual of Tests and Criteria.  
\* \* \* \* \*

■ 30. In § 173.125, paragraph (a) is revised to read as follows:

**§ 173.125 Class 4—Assignment of packing group.**

(a) The packing group of a Class 4 material is assigned in column (5) of the § 172.101 Table. When the § 172.101 Table provides more than one packing group for a hazardous material, the

packing group shall be determined on the basis of test results following test methods given in the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter) and by applying the appropriate criteria given in this section.  
\* \* \* \* \*

■ 31. In § 173.127, paragraph (a)(1) is revised to read as follows:

**§ 173.127 Class 5, Division 5.1—Definition and assignment of packing groups.**

- (a) \* \* \*

(1) A solid material is classed as a Division 5.1 material if, when tested in accordance with the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter), its mean burning time is less than or equal to the burning time of a 3:7 potassium bromate/cellulose mixture.  
\* \* \* \* \*

■ 32. In § 173.128, paragraphs (c)(3) and (e) are revised to read as follows:

**§ 173.128 Class 5, Division 5.2—Definitions and types.**

- (c) \* \* \*

(3) Performance of the organic peroxide under the test procedures specified in the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter), and the provisions of paragraph (d) of this section.  
\* \* \* \* \*

(e) *Tests.* The generic type for an organic peroxide shall be determined using the testing protocol from Figure 20.1(a) (Classification and Flow Chart Scheme for Organic Peroxides) from the UN Manual of Tests and Criteria (IBR, see § 171.7 of this subchapter).

■ 33. In § 173.137, the introductory paragraph is revised to read as follows:

**§ 173.137 Class 8—Assignment of packing group.**

The packing group of a Class 8 material is indicated in Column 5 of the § 172.101 Table. When the § 172.101 Table provides more than one packing group for a Class 8 material, the packing group must be determined using data obtained from tests conducted in accordance with the 1992 OECD Guideline for Testing of Chemicals, Number 404, “Acute Dermal Irritation/Corrosion” (IBR, see § 171.7 of this subchapter) as follows:  
\* \* \* \* \*

■ 34. In § 173.158, paragraph (b)(1)(v) is revised to read as follows:

**§ 173.158 Nitric acid.**

- (b) \* \* \*

- (1) \* \* \*

(v) All parts of drum exposed to lading must be capable of withstanding the corrosive effect of nitric acid to the extent that 65 percent boiling nitric acid does not penetrate the metal more than 0.0381 mm (0.002 inches) per month. (ASTM A 262 may be used for a suitable corrosion test procedure.)  
\* \* \* \* \*

■ 35. In § 173.197, paragraph (c) introductory text is revised to read as follows:

**§ 173.197 Regulated medical waste.**

- \* \* \* \* \*

(c) *Large Packagings.* Large Packagings constructed, tested, and marked in accordance with the requirements of the UN Recommendations (IBR, see § 171.7 of this subchapter) and conforming to other requirements of this paragraph (c) may be used for the transportation of regulated medical waste, provided the waste is contained in inner packagings conforming to the requirements of paragraph (e) of this section. Each Large Packaging design must be capable of meeting the vibration test specified in § 178.819 of this subchapter. Each Large Packaging is subject to the periodic design requalification requirements for IBCs in § 178.801(e) of this subchapter, and to the proof of compliance requirements of § 178.801(j) and record retention requirements of § 178.801(l) of this subchapter. Inner packagings used for liquids must be rigid.  
\* \* \* \* \*

■ 36. In § 173.225, paragraph (e)(4) is revised to read as follows:

**§ 173.225 Packaging requirements and other provisions for organic peroxides.**

- \* \* \* \* \*

- (e) \* \* \*

(4) For tertiary butyl hydroperoxide (TBHP), each tank car, cargo tank or portable tank must contain 7.6 cm (3.0 inches) low density polyethylene (PE) saddles having a melt index of at least 0.2 grams per 10 minutes, as set forth in ASTM D 1238, condition E (IBR, see § 171.7 of this subchapter), as part of the lading, with a ratio of PE to TBHP over a range of 0.008 to 0.012 by mass. Alternatively, plastic or metal containers equipped with fusible plugs having a melting point between 69 °C (156 °F) and 71 °C (160 °F) and filled with a sufficient quantity of water to dilute the TBHP to 65 percent or less by mass may be used. The PE saddles must be visually inspected after each trip and, at a minimum, once every 12 months, and replaced when discoloration,

fracture, severe deformation, or other indication of change is noted.

\* \* \* \* \*

■ 37. In § 173.249, paragraph (d) is revised to read as follows:

**§ 173.249 Bromine.**

\* \* \* \* \*

(d) The tank must be made from nickel-clad or lead-lined steel plate. Nickel cladding or lead lining must be on the inside of the tank. Nickel cladding must comprise at least 20 percent of the required minimum total thickness. Nickel cladding must conform to ASTM B 162 (IBR, see § 171.7 of this subchapter). Lead lining must be at least 4.763 mm (0.188 inch) thick. All tank equipment and appurtenances in contact with the lading must be lined or made from metal not subject to deterioration by contact with lading.

\* \* \* \* \*

■ 38. In § 173.301, paragraph (f)(1) is revised to read as follows:

**§ 173.301 General requirements for shipment of compressed gases in cylinders and spherical pressure vessels.**

\* \* \* \* \*

(f) \* \* \*

(1) Except as provided in paragraphs (f)(5) and (f)(6) of this section, a cylinder filled with a gas and offered for transportation must be equipped with one or more pressure relief devices sized and selected as to type, location, and quantity, and tested in accordance with CGA S-1.1 (compliance with paragraph 9.1.1.1 of CGA S-1.1 is not required) and S-7. The pressure relief device must be capable of preventing rupture of the normally filled cylinder when subjected to a fire test conducted in accordance with CGA C-14 (IBR, see § 171.7 of this subchapter), or, in the case of an acetylene cylinder, CGA C-12 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 39. In § 173.302, paragraph (b)(3) is revised to read as follows:

**§ 173.302 Filling of cylinders with non-liquefied (permanent) compressed gases.**

\* \* \* \* \*

(b) \* \* \*

(3) Each cylinder must be cleaned in accordance with the requirements of GSA Federal Specification RR-C-901C, paragraphs 3.3.1 and 3.3.2 (IBR, see § 171.7 of this subchapter). Cleaning agents equivalent to those specified in Federal Specification RR-C-901C may be used provided they do not react with oxygen. One cylinder selected at random from a group of 200 or fewer and cleaned at the same time must be

tested for oil contamination in accordance with Federal Specification RR-C-901C, paragraph 4.4.2.2, and meet the specified standard of cleanliness.

\* \* \* \* \*

■ 40. In § 173.302a, the definition of “K” in paragraph (b)(3)(i)(A) and paragraph (b)(3)(iii) are revised to read as follows:

**§ 173.302a Additional requirements for shipment of non-liquefied (permanent) compressed gases in specification cylinders.**

\* \* \* \* \*

(b) \* \* \*

(3) \* \* \*

(i) \* \* \*

(A) \* \* \*

Where: \* \* \*

K = factor × 10<sup>-7</sup> experimentally determined for the particular type of cylinder being tested or derived in accordance with CGA C-5 (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

(iii) Compliance with average wall stress limitation may be determined by computing the elastic expansion rejection limit in accordance with CGA C-5, by reference to data tabulated in CGA C-5, or by the manufacturer’s marked elastic expansion rejection limit (REE) on the cylinder.

\* \* \* \* \*

■ 41. In § 173.303, paragraphs (a) and (e) are revised to read as follows:

**§ 173.303 Charging of cylinders with compressed gas in solution (acetylene).**

(a) *Cylinder, filler and solvent requirements.* (Refer to applicable parts of Specification 8 and 8AL). Acetylene gas must be shipped in Specification 8 or 8AL cylinders (§ 178.59 or § 178.60 of this subchapter). The cylinders shall consist of metal shells filled with a porous material, and this material must be charged with a suitable solvent. The cylinders containing the porous material and solvent shall be successfully tested in accordance with CGA C-12 (IBR, see § 171.7 of this subchapter).

Representative samples of cylinders charged with acetylene must be successfully tested in accordance with CGA C-12.

\* \* \* \* \*

(e) *Prefill requirements.* Before each filling of an acetylene cylinder, the person filling the cylinder must visually inspect the outside of the cylinder in accordance with the prefill requirements contained in CGA C-13, Section 3 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 42. In § 173.306, paragraphs (e)(1)(iii) and (e)(1)(v) are revised to read as follows:

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

\* \* \* \* \*

(e) \* \* \*

(1) \* \* \*

(iii) Each pressure vessel must be equipped with a safety device meeting the requirements of ANSI/ASHRAE 15 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

(v) Pressure vessels must be manufactured, inspected and tested in accordance with ANSI/ASHRAE 15, or when over 6 inches internal diameter, in accordance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 43. In § 173.307, paragraph (a)(4)(iv) is revised to read as follows:

**§ 173.307 Exceptions for compressed gases.**

(a) \* \* \*

(4) \* \* \*

(iv) Except when offered or transported by air or vessel, 20 kg (44 pounds) or less of a Group A1 refrigerant specified in ANSI/ASHRAE Standard 15 (IBR, see § 171.7 of this subchapter); or

\* \* \* \* \*

■ 44. In § 173.315, paragraph (a) Notes 3, 11, and 15, and paragraphs (i)(1)(i), (i)(13), (j)(1), (k) introductory paragraph, (k)(3), (l)(5), and (m)(1) are revised to read as follows:

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

(a) \* \* \*

**Note 3:** If cargo tanks and portable tank containers for carbon dioxide, refrigerated liquid, and nitrous oxide, refrigerated liquid, are designed to conform to the requirements in Section VIII of the ASME Code for low temperature operation (IBR, see § 171.7 of this subchapter), the design pressure may be reduced to 100 psig or the controlled pressure, whichever is greater.

\* \* \* \* \*

**Note 11:** MC-330, MC-331 and MC-338 cargo tanks must be insulated. Cargo tanks must meet all the following requirements. Each tank must have a design service temperature of minus 100°F., or no warmer than the boiling point at one atmosphere of the hazardous material to be shipped therein, whichever is colder, and must conform to the low-temperature requirements in Section VIII of the ASME Code. When the normal travel time is 24 hours or less, the tank’s holding time as loaded must be at least twice the normal travel time. When the normal travel time exceeds 24 hours, the tank’s holding time as loaded must be at least 24 hours

greater than the normal travel time. The holding time is the elapsed time from loading until venting occurs under equilibrium conditions. The cargo tank must have an outer jacket made of steel when the cargo tank is used to transport a flammable gas.

\* \* \* \* \*

**Note 15:** Specifications MC 330 and MC 331 cargo tanks constructed of other than quenched and tempered steel (NQT) are authorized for all grades of liquefied petroleum gases. Only grades of liquefied petroleum gases determined to be "noncorrosive" are authorized in Specification MC 330 and MC 331 cargo tanks constructed of quenched and tempered steel (QT). "Noncorrosive" means the corrosiveness of the gas does not exceed the limitations for classification 1 of the ASTM Copper Strip Classifications when tested in accordance with ASTM D 1838, "Copper Strip Corrosion by Liquefied Petroleum (LP) Gases" (IBR, see § 171.7 of this subchapter). (For (QT) and (NQT) marking requirements, see § 172.328(c) of this subchapter. For special shipping paper requirements, see § 172.203(h) of this subchapter.)

\* \* \* \* \*

- (j) \* \* \*
- (1) \* \* \*

(i) The total relieving capacity, as determined by the flow formulas contained in Section 5 of CGA S-1.2 (IBR, see § 171.7 of this subchapter), must be sufficient to prevent a maximum pressure in the tank of more than 120 percent of the design pressure;

\* \* \* \* \*

(13) A safety relief valve on a chlorine cargo tank must conform to one of the following standards of The Chlorine Institute, Inc.: Type 1 1/2 JQ225, Dwg. H51970 (IBR, see § 171.7 of this subchapter); or Type 1 1/2 JQ225, Dwg. H50155 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

- (j) \* \* \*

(1) Each container must be constructed in compliance with the requirements in Section VIII of the ASME Code (containers built in compliance with earlier editions starting with 1943 are authorized) and must be marked to indicate compliance in the manner specified by the respective Code.

\* \* \* \* \*

(k) A nonspecification cargo tank meeting, and marked in conformance with, the edition of Section VIII of the ASME Code in effect when it was fabricated may be used for the transportation of liquefied petroleum gas provided it meets all of the following conditions:

\* \* \* \* \*

(3) It must have been manufactured in conformance with Section VIII of the

ASME Code prior to January 1, 1981, according to its ASME name plate and manufacturer's data report.

\* \* \* \* \*

- (l) \* \* \*

(5) The analysis method for water content must be as prescribed in CGA G-2.2, "Tentative Standard Method for Determining Minimum of 0.2 percent water in Anhydrous Ammonia," (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

- (m) \* \* \*

(1) Has a minimum design pressure of 250 psig and meets the requirements of the edition of Section VIII of the ASME Code in effect at the time it was manufactured and is marked accordingly;

\* \* \* \* \*

■ 45. In § 173.318, paragraph (b)(2)(i) introductory text and paragraph (b)(9)(ii) are revised to read as follows:

**§ 173.318 Cryogenic liquids in cargo tanks.**

\* \* \* \* \*

- (b) \* \* \*

- (2) \* \* \*

(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 S-1.2 (IBR, see § 171.7 of this subchapter). In addition:

\* \* \* \* \*

- (9) \* \* \*

(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 Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), or 25 psig, whichever is less.

\* \* \* \* \*

■ 46. In § 173.320, paragraph (c) is revised to read as follows:

**§ 173.320 Cryogenic liquids; exceptions.**

\* \* \* \* \*

(c) For transportation aboard aircraft, see the ICAO Technical Instructions (IBR, see § 171.7 of this subchapter), Packing Instruction 202 and the packaging specifications in part 6, chapter 5.

\* \* \* \* \*

■ 47. In § 173.323, the last two sentences in paragraph (b)(3) are revised to read as follows:

**§ 173.323 Ethylene oxide.**

\* \* \* \* \*

- (b) \* \* \*

(3) \* \* \* The capacity of relief device and insulation must be such that the charged receptacle will not explode when tested by the method described in CGA Pamphlet C-14 (IBR, see § 171.7 of this subchapter) or other equivalent method. Each completed package must be capable of passing all Packing Group I performance tests.

\* \* \* \* \*

■ 48. Section 173.336 is revised to read as follows:

**§ 173.336 Nitrogen dioxide, liquefied, or dinitrogen tetroxide, liquefied.**

Nitrogen dioxide, liquefied, or dinitrogen tetroxide, liquefied, must be packaged in specification cylinders as prescribed in § 173.192. Specification cylinders prescribed in § 173.192 with valve removed are authorized. Each valve opening must be closed by means of a solid metal plug with tapered thread properly luted to prevent leakage. Transportation in DOT 3AL cylinders is authorized only by highway or rail. Each cylinder must be cleaned in compliance with the requirements of GSA Federal Specification RR-C-901C, paragraphs 3.3.1 and 3.3.2 (IBR, see § 171.7 of this subchapter). Cleaning agents equivalent to those specified in Federal Specification RR-C-901C may be used; however, any cleaning agent must not be capable of reacting with oxygen. One cylinder selected at random from a group of 200 or fewer and cleaned at the same time must be tested for oil contamination in accordance with Federal Specification RR-C-901C, paragraphs 4.4.2.2 and meet the standard of cleanliness specified therein.

■ 49. In § 173.337, paragraph (b) is revised to read as follows:

**§ 173.337 Nitric oxide.**

\* \* \* \* \*

(b) Each cylinder must be cleaned in compliance with the requirements of GSA Federal Specification RR-C-901C, paragraphs 3.3.1 and 3.3.2 (IBR, see § 171.7 of this subchapter). Cleaning agents equivalent to those specified in Federal Specification RR-C-901C may be used; however, any cleaning agent must not be capable of reacting with oxygen. One cylinder selected at random from a group of 200 or fewer and cleaned at the same time must be tested for oil contamination in accordance with Federal Specification

RR-C-901C paragraph 4.4.2.2 and meet the standard of cleanliness specified therein.

■ 50. In § 173.411, paragraphs (b)(5)(ii) and (b)(5)(iii) are revised to read as follows:

**§ 173.411 Industrial packagings.**

\* \* \* \* \*

- (b) \* \* \*
- (5) \* \* \*

(ii) Be designed to conform to the requirements of ISO 1496-3, "Series 1 Freight Containers—Specifications and Testing—Part 3: Tank Containers for Liquids, Gases and Pressurized Dry Bulk" (IBR, see § 171.7 of this subchapter);

(iii) Be designed so that loss of shielding will not result in a significant increase in the radiation levels recorded at the external surfaces if they are subjected to the tests specified in ISO 1496-3; and

\* \* \* \* \*

■ 51. In § 173.420, paragraphs (a)(1) and (a)(2)(iii) introductory text are revised to read as follows:

**§ 173.420 Uranium hexafluoride (fissile, fissile excepted and non-fissile).**

- (a) \* \* \*

(1) Before initial filling and during periodic inspection and test, packagings must be cleaned in accordance with ANSI N14.1 (IBR, see § 171.7 of this subchapter).

- (2) \* \* \*

(iii) Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), provided the packaging —

\* \* \* \* \*

■ 52. In § 173.469, paragraph (a)(4)(ii) is revised to read as follows:

**§ 173.469 Tests for special form Class 7 (radioactive) materials.**

- (a) \* \* \*
- (4) \* \* \*

(ii) A specimen that comprises or simulates Class 7 (radioactive) material contained in a sealed capsule need not be subjected to the leaktightness procedure specified in this section provided it is alternatively subjected to any of the tests prescribed in ISO/TR4826, "Sealed Radioactive Sources Leak Test Methods" (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 53. In § 173.473, the introductory paragraph is revised to read as follows:

**§ 173.473 Requirements for foreign-made packages.**

In addition to other applicable requirements of this subchapter, each offeror of a foreign-made Type B, Type

B(U), Type B(M), or fissile material package for which a Competent Authority Certificate is required by IAEA's "Regulations for the Safe Transport of Radioactive Materials, Safety Series No. 6" (IBR, see § 171.7 of this subchapter), shall also comply with the following requirements:

\* \* \* \* \*

■ 54. In Appendix H to Part 173, paragraph 3. introductory paragraph is revised to read as follows:

**Appendix H to Part 173—Method of Testing for Sustained Combustibility**

\* \* \* \* \*

**3. Apparatus**

A combustibility tester consisting of a block of aluminum alloy or other corrosion-resistant metal of high thermal conductivity is used. The block has a concave well and a pocket drilled to take a thermometer. A small gas jet assembly on a swivel is attached to the block. The handle and gas inlet for the gas jet may be fitted at any convenient angle to the gas jet. A suitable apparatus is shown in Figure 5.1 of the UN Recommendations, and the essential dimensions are given in Figures 5.1 and 5.2 of the UN Recommendations (IBR, see § 171.7 of this subchapter). The following equipment is needed:

\* \* \* \* \*

**PART 174—CARRIAGE BY RAIL**

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

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

■ 56. In § 174.55, paragraph (c) is revised to read as follows:

**§ 174.55 General requirements.**

\* \* \* \* \*

(c) The doors of a freight container or transport vehicle may not be used to secure a load that includes a package containing a hazardous material unless the doors meet the design strength requirements of Specification M-930 (for freight containers) and M-931 (for trailers) in the AAR's specification for "Specially Equipped Freight Car and Intermodal Equipment" (IBR, see § 171.7 of this subchapter) and the load is also within the limits of the design strength requirements for the doors.

■ 57. In § 174.63, paragraphs (c)(2), (c)(3), and (c)(4) are revised to read as follows:

**§ 174.63 Portable tanks, IM portable tanks, IBCs, cargo tanks, and multi-unit tank car tanks.**

\* \* \* \* \*

- (c) \* \* \*

(2) The tank and flatcar conform to requirements in AAR 600 of the AAR

Specifications for Tank Cars, "Specifications for Acceptability of Tank Containers" (IBR, see § 171.7 of this subchapter);

(3) For TOFC service, the trailer chassis conforms to requirements in paragraphs 3, 4, 5, and 6 of AAR Specification M-943, "Container Chassis For TOFC Service" of the AAR specification for "Specially Equipped Freight Car and Intermodal Equipment" (IBR, see § 171.7 of this subchapter);

(4) For COFC service, the container support and securement systems conform to requirements in Specification M-952, "Intermodal Container Support and Securement Systems for Freight Cars", of the AAR specification for "Specially Equipped Freight Car and Intermodal Equipment" (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

**PART 175—CARRIAGE BY AIRCRAFT**

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

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

■ 58. In § 175.33, paragraph (a)(1) introductory text is revised to read as follows:

**§ 175.33 Notification of pilot-in-command.**

- (a) \* \* \*

(1) The proper shipping name, hazard class and identification number of the material, including any remaining aboard from prior stops, as specified in § 172.101 of this subchapter or the ICAO Technical Instructions (IBR, see § 171.7 of this subchapter). In the case of Class 1 material, the compatibility group letter also must be shown. If a hazardous material is described by the proper shipping name, hazard class, and identification number appearing in:

\* \* \* \* \*

**PART 176—CARRIAGE BY VESSEL**

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

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

**PART 176—[AMENDED]**

■ 59. In Part 176, amend the following sections by removing the parenthetical phrase "(see § 171.7 of this subchapter)" and adding the parenthetical phrase "(IBR, see § 171.7 of this subchapter)" in each of the following places:

- 178.2, Explosive article
- 176.5(b)(8)
- 176.11(a) introductory text
- 176.27(b)
- 176.30(a) introductory text

■ 60. In § 176.2, the definition for *INF cargo* is revised to read as follows:

**§ 176.2 Definitions.**

\* \* \* \* \*

*INF cargo* means packaged irradiated nuclear fuel, plutonium or high-level radioactive wastes as those terms are defined in the “International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships” (INF Code) contained in the IMDG Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 61. In § 176.140, paragraph (b) introductory paragraph is revised to read as follows:

**§ 176.140 Segregation from other classes of hazardous materials.**

\* \* \* \* \*

(b) Class 1 (explosive) materials must be segregated from bulk solid dangerous cargoes in accordance with the IMDG Code (IBR, see § 171.7 of this subchapter). Notwithstanding § 176.83(b), ammonium nitrate and sodium nitrate may be stowed together with blasting explosives, except those containing chlorates, provided the mixed stowage is treated as blasting explosives (see § 176.410(e)).

■ 62. Section 176.720 is revised to read as follows:

**§ 176.720 Requirements for carriage of INF cargo in international transportation.**

In addition to all other applicable requirements of this subchapter, a vessel carrying INF cargo (see § 176.2, under INF cargo definition) in international transportation must meet the requirements of the INF Code contained in the IMDG Code (IBR, see § 171.7 of this subchapter).

**PART 177—CARRIAGE BY PUBLIC HIGHWAY**

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

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

**§ 177.835 [Amended]**

■ 64. In § 177.835, amend paragraph (g)(3)(ii) by removing the parenthetical phrase “(incorporated by reference, see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in its place.

■ 65. In § 177.840, paragraph (u) is revised to read as follows:

**§ 177.840 Class 2 (gases) materials.**

\* \* \* \* \*

(u) *Unloading of chlorine cargo tank motor vehicles.* After July 1, 2001, unloading of chlorine from a cargo tank motor vehicle must be performed in compliance with Section 3 of the Chlorine Institute Pamphlet 57, “Emergency Shut-off Systems for Bulk Transfer of Chlorine” (IBR, see § 171.7 of this subchapter).

**PART 178—SPECIFICATIONS FOR PACKAGINGS**

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

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

**PART 178—[AMENDED]**

■ 67. In Part 178, amend the following sections by removing the parenthetical phrase “(incorporated by reference; see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in each of the following places:

- 178.36(k)(3)(i)
- 178.37(k)(3)(i)
- 178.38(k)(3)(i)
- 178.39(k)(3)(i)
- 178.44(m)(3)(i)
- 178.45(j)(3)(i)
- 178.47(d)
- 178.50(d)
- 178.50(k)(3)(i)
- 178.51(d)(2)
- 178.51(j)(3)(i)
- 178.51(l)(1)
- 178.53(d)
- 178.53(j)(5)(i)
- 178.55(k)(3)(i)
- 178.56(j)(3)(i)
- 178.57(d)(5)
- 178.57(j)(3)(i)
- 178.57(l)(4)(v)
- 178.57(o)(1)
- 178.58(d)(1)
- 178.58(m)(5)(i)
- 178.59(d)
- 178.59(j)(3)(i)
- 178.60(d)
- 178.60(l)(3)(i)
- 178.61(d)(4)
- 178.61(j)(3)(i)
- 178.65(c)(4)
- 178.68(j)(3)(i)
- 178.68(l)(2)
- 178.358–5(c)

■ 68. In Part 178, amend the following sections by removing the parenthetical phrase “(see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in each of the following places:

- 178.276(a)(1)
- 178.276(c)(7)
- 178.277(a)—Design pressure

- 178.277(b)(3)
- 178.277(e)(4)(iv)

■ 69. In Part 178, amend the following sections by removing the parenthetical phrase “(incorporated by reference; see § 171.7 of this subchapter)” in each of the following places:

- 178.51(l)(2)
- 178.51(l)(3)
- 178.56(l)(1)
- 178.56(l)(2)
- 178.56(l)(3)
- 178.57(e)(3)
- 178.57(l)(1)
- 178.57(l)(2)
- 178.57(l)(3)
- 178.57(l)(4)(vi)
- 178.57(m)(1)
- 178.60(n)(1)
- 178.60(n)(2)
- 178.60(n)(3)
- 178.61(l)(1)
- 178.61(l)(2)
- 178.61(l)(3)
- 178.61(m)(1)

■ 70. In Part 178, amend the following sections by removing the parenthetical phrase “(see § 171.7 of this subchapter)” in each of the following places:

- 178.273(c)(1)
- 178.276(b)(1)
- 178.276(b)(2)(i)
- 178.277(b)(1)

■ 71. In § 178.3, paragraph (b)(1) is revised to read as follows:

**§ 178.3 Marking of packagings.**

\* \* \* \* \*

(b) \* \* \*

(1) The U.S. manufacturer must establish that the packaging conforms to the applicable provisions of the ICAO Technical Instructions (IBR, see § 171.7 of this subchapter) or the IMDG Code (IBR, see § 171.7 of this subchapter), respectively.

\* \* \* \* \*

■ 72. In § 178.35, paragraph (g) is revised to read as follows:

**§ 178.35 General requirements for specification cylinders.**

\* \* \* \* \*

(g) *Inspector’s report.* Each inspector shall prepare a report containing, at a minimum, the applicable information listed in CGA Pamphlet C–11 (IBR, see § 171.7 of this subchapter) or, until October 1, 1997, in accordance with the applicable test report requirements of this subchapter in effect on September 30, 1996. Any additional information or markings that are required by the applicable specification must be shown on the test report. The signature of the inspector on the reports certifies that the processes of manufacture and heat

treatment of cylinders were observed and found satisfactory.

\* \* \* \* \*

■ 73. In § 178.44, the introductory text preceding the table in paragraph (b) is revised to read as follows:

**§ 178.44 Specification 3HT seamless steel cylinders for aircraft use.**

\* \* \* \* \*

(b) *Authorized steel.* Open hearth or electric furnace steel of uniform quality must be used. A heat of steel made under the specifications listed in Table 1 in this paragraph (b), a check chemical analysis that is slightly out of the specified range is acceptable, if satisfactory in all other respects, provided the tolerances shown in Table 2 in this paragraph (b) are not exceeded. The maximum grain size shall be 6 or finer. The grain size must be determined in accordance with ASTM E 112-88 (IBR, see § 171.7 of this subchapter). Steel of the following chemical analysis is authorized:

\* \* \* \* \*

■ 74. In § 178.45, paragraphs (f)(5)(ii), (f)(5)(iii), (f)(5)(iv), and (j)(4) are revised to read as follows:

**§ 178.45 Specification 3T seamless steel cylinder.**

\* \* \* \* \*

(f) \* \* \*

(5) \* \* \*

(ii) Taper threads, when used, must be the American Standard Pipe thread (NPT) type and must be in compliance with the requirements of NBS Handbook H-28 (IBR, see § 171.7 of this subchapter).

(iii) Taper threads conforming to National Gas Taper thread (NGT) standards must be in compliance with the requirements of NBS Handbook H-28.

(iv) Straight threads conforming with National Gas Straight thread (NGS) standards are authorized. These threads must be in compliance with the requirements of NBS Handbook H-28.

\* \* \* \* \*

(j) \* \* \*

(4) Each impact specimen must be Charpy V-notch type size 10 mm x 10 mm taken in accordance with paragraph 11 of ASTM A 333 (IBR, see § 171.7 of this subchapter). When a reduced size specimen is used, it must be the largest size obtainable.

\* \* \* \* \*

■ 75. In § 178.46, footnote 2 following table 1 in paragraph (b)(4), and paragraphs (e)(5)(ii)(A), (e)(5)(ii)(B), (e)(5)(iii)(A), (e)(5)(iii)(B), (e)(5)(iii)(C), (e)(5)(iv), and (i)(3)(i) are revised to read as follows:

**§ 178.46 Specification 3AL seamless aluminum cylinders.**

\* \* \* \* \*

(b) \* \* \*

(4) \* \* \*

<sup>2</sup>Except for “Pb” and “Bi”, the chemical composition corresponds with that of Table 1 of ASTM B 221 (IBR, see § 171.7 of this subchapter) for Aluminum Association alloy 6061.

\* \* \* \* \*

(e) \* \* \*

(5) \* \* \*

(ii) \* \* \*

(A) American Standard Pipe Thread (NPT) type, conforming to the requirements of NBS Handbook H-28 (IBR, see § 171.7 of this subchapter);

(B) National Gas Taper Thread (NGT) type, conforming to the requirements of NBS Handbook H-28; or

\* \* \* \* \*

(iii) \* \* \*

(A) National Gas Straight Thread (NGS) type, conforming to the requirements of NBS Handbook H-28;

(B) Unified Thread (UN) type, conforming to the requirements of NBS Handbook H-28;

(C) Controlled Radius Root Thread (UN) type, conforming to the requirements of NBS Handbook H-28; or

\* \* \* \* \*

(iv) 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 NBS Handbook H-28.

\* \* \* \* \*

(i) \* \* \*

(3) \* \* \*

(i) The yield strength must be determined by either the “offset” method or the “extension under load” method as prescribed in ASTM B 557 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 76. In § 178.55, paragraph (d)(3) is revised to read as follows:

**§ 178.55 Specification 4B240ET welded or brazed cylinders.**

\* \* \* \* \*

(d) \* \* \*

(3) Welding procedures and operators must be qualified in accordance with CGA C-3 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 77. In § 178.56, paragraph (d)(3) is revised to read as follows:

**§ 178.56 Specification 4AA480 welded steel cylinders.**

\* \* \* \* \*

(d) \* \* \*

(3) Welding procedures and operators must be qualified in accordance with CGA C-3 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 78. In § 178.59, paragraph (l)(1)(v) is revised to read as follows:

**§ 178.59 Specification 8 steel cylinders with porous fillings for acetylene.**

\* \* \* \* \*

(l) \* \* \*

(1) \* \* \*

(v) The installed filling material must meet the requirements of CGA C-12 (IBR, see § 171.7 of this subchapter); and

\* \* \* \* \*

■ 79. In § 178.60, paragraph (p)(1)(v) is revised to read as follows:

**§ 178.60 Specification 8AL steel cylinders with porous fillings for acetylene.**

\* \* \* \* \*

(p) \* \* \*

(1) \* \* \*

(v) The installed filling material must meet the requirements of CGA C-12 (IBR, see § 171.7 of this subchapter); and

\* \* \* \* \*

■ 80. In § 178.65, paragraph (b)(2) is revised to read as follows:

**§ 178.65 Specification 39 non-reusable (non-refillable) cylinders.**

\* \* \* \* \*

(b) \* \* \*

(2) *Aluminum.* Aluminum is not authorized for service pressures in excess of 500 psig. The analysis of the aluminum must conform to the Aluminum Association standard for alloys 1060, 1100, 1170, 3003, 5052, 5086, 5154, 6061, and 6063, as specified in its publication entitled “Aluminum Standards and Data” (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 81. In § 178.245-1, paragraph (a) is revised to read as follows:

**§ 178.245-1 Requirements for design and construction.**

(a) Tanks must be seamless or welded steel construction, or a combination of both, and have a water capacity in excess of 454 kg (1,000 pounds). Tanks must be designed, constructed, certified and stamped in accordance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 82. In § 178.245-3, paragraph (a) and Note 1 are revised to read as follows:

**§ 178.245-3 Design pressure.**

(a) The design pressure of a tank authorized under this specification shall

be not less than the vapor pressure of the commodity contained therein at 46 °C (115 °F), or as prescribed for a particular commodity by part 173 of this chapter, except that in no case shall the design pressure of any container be less than 100 psig or more than 500 psig. When corrosion factor is prescribed by these regulations, the wall thickness of the tank calculated in accordance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) shall be increased by 20 percent or 2.54 mm (0.10 inch), whichever is less.

**Note 1:** The term design pressure as used in this specification is identical to the term "MAWP" as used in the ASME Code.

\* \* \* \* \*

■ 83. In § 178.245-4, paragraph (b) is revised to read as follows:

**§ 178.245-4 Tank mountings.**

\* \* \* \* \*

(b) All tank mountings such as skids, fastenings, brackets, cradles, lifting lugs, etc., intended to carry loadings shall be permanently secured to tanks in accordance with the requirements in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) under which the tanks were fabricated, and shall be designed to withstand static loadings in any direction equal to twice the weight of the tank and attachments when filled with the lading using a safety factor of not less than four, based on the ultimate strength of the material to be used. The specific gravity used in determining the static loadings shall be shown on the marking required by § 178.245-6(a) and on the report required by § 178.245-7(a).

\* \* \* \* \*

■ 84. In § 178.245-6, the first sentence in paragraph (a) is revised to read as follows:

**§ 178.245-6 Name plate.**

(a) In addition to the markings required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) under which tanks were constructed, they shall have permanently affixed, in close proximity to the ASME "U" stamp certification, a metal plate.\* \* \*

\* \* \* \* \*

■ 85. In § 178.245-7, paragraph (a) is revised to read as follows:

**§ 178.245-7 Report.**

(a) A copy of the manufacturer's data report required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) under which the tank is fabricated shall be furnished to the owner for each new tank.

\* \* \* \* \*

■ 86. In § 178.255-1, paragraph (b) is revised to read as follows:

**§ 178.255-1 General requirements.**

\* \* \* \* \*

(b) Tanks must be designed, constructed, certified, and stamped in accordance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 87. In § 178.255-2, paragraph (a) is revised to read as follows:

**§ 178.255-2 Material.**

(a) Material used in the tank must be steel of good weldable quality and conform with the requirements in Sections V, VIII, and IX of the ASME Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 88. In § 178.255-14, paragraph (a) is revised to read as follows:

**§ 178.255-14 Marking.**

(a) In addition to markings required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), every tank shall bear permanent marks at least 1/8-inch high stamped into the metal near the center of one of the tank heads or stamped into a plate permanently attached to the tank by means of brazing or welding or other suitable means as follows: \* \* \*

\* \* \* \* \*

■ 89. In § 178.255-15, the first sentence in paragraph (a) is revised to read as follows:

**§ 178.255-15 Report.**

(a) A copy of the manufacturer's data report required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) under which the tank is fabricated must be furnished to the owner for each new tank. \* \* \*

\* \* \* \* \*

■ 90. In § 178.270-2, paragraph (c) is revised to read as follows:

**§ 178.270-2 General.**

\* \* \* \* \*

(c) Each portable tank must have a cross-sectional design that is capable of being stress analyzed either mathematically or by the experimental method contained in UG-101 in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), or other method acceptable to the Associate Administrator.

\* \* \* \* \*

■ 91. In § 178.270-3, paragraphs (a), (b)(1), and the last three sentences of

paragraph (e) are revised to read as follows:

**§ 178.270-3 Materials of construction.**

(a) Each portable tank must be constructed of carbon or alloy steels. Materials included in part UHT in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) or equivalent materials are not authorized. Any materials used in the tank shell must conform to a recognized national standard and must be suitable for the external environments in which the tank will be carried. The minimum elongation for any material must be 20 percent or greater.

(b) \* \* \*

(1) 1.5 times the specified values for the material at 93 °C (200 °F) in Section VIII of the ASME Code;

\* \* \* \* \*

(e) \* \* \* Tensile tests and analysis of results must be in accordance with ISO 82, "Steels-Tensile Testing" (IBR, see § 171.7 of this subchapter). The yield strength in tension shall be the stress corresponding to a permanent strain of 0.2 percent of the gauge length, except that for high alloy austenitic steels the yield strength shall be the stress corresponding to a permanent strain of 0.2 or 1.0 percent of the gauge length as appropriate. The elongation must be at least 20 percent.

\* \* \* \* \*

■ 92. Section 178.270-7 is revised to read as follows:

**§ 178.270-7 Joints in tank shells.**

Joints in tank shells must be made by fusion welding. Such joints and their efficiencies must be as required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter). Weld procedures and welder performance must be ASME Code qualified or must be qualified by the approval agency in accordance with the procedures in the ASME Code, Section IX, Welding and Brazing Qualifications. A record of each qualification must be retained by the manufacturer for the period prescribed in Section VIII of the ASME Code, and must be made available to any duly identified representative of the Department and the owner of the tank.

■ 93. Section 178.270-9 is revised to read as follows:

**§ 178.270-9 Inspection openings.**

Each portable tank must be fitted with a manhole or other inspection opening sited above the maximum liquid level to allow for complete internal inspection and adequate access for maintenance and repair of the interior. Each portable tank with a capacity of more than 1,894

L (500 gallons) must be fitted with an elliptical or round manhole at least 279 × 381 mm (11 × 15 inches), or 254 × 405 mm (10 × 16 inches), or with a circular manhole at least 381 mm (15 inches) in diameter. Any inspection opening and closure must be designed and reinforced as required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

■ 94. In § 178.270–11, paragraph (d)(6) introductory text is revised to read as follows:

**§ 178.270–11 Pressure and vacuum relief devices.**

\* \* \* \* \*

(d) \* \* \*

(6) The flow capacity rating of any pressure relief device must be certified by the manufacturer to be in accordance with the applicable provisions in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) with the following exceptions:

\* \* \* \* \*

■ 95. In § 178.270–12, paragraph (f) is revised to read as follows:

**§ 178.270–12 Valves, nozzles, piping, and gauging devices.**

\* \* \* \* \*

(f) All nozzles and tank shell penetrations for nozzles shall be designed and constructed in accordance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 96. In § 178.271–1, paragraph (c) is revised to read as follows:

**§ 178.271–1 General requirements.**

\* \* \* \* \*

(c) Each tank shall be designed and constructed in accordance with the requirements in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) except as limited or modified in this section or in § 178.270 of this subpart. ASME certification or stamp is not required.

■ 97. In § 178.272–1, paragraph (c) is revised to read as follows:

**§ 178.272–1 General requirements.**

\* \* \* \* \*

(c) Each tank shall be designed and constructed in accordance with the requirements in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) except as limited or modified in this section or in § 178.270 of this subpart. ASME certification or stamp is not required.

■ 98. In § 178.273, paragraph (b)(6)(i) is revised to read as follows:

**§ 178.273 Approval of Specification IM portable tanks and UN portable tanks.**

\* \* \* \* \*

(b) \* \* \*

(6) \* \* \*

(i) The portable tank has been designed, constructed, certified, and stamped in accordance with the requirements in Division 1 of Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter). Other design codes may be used if approved by the Associate Administrator (see § 178.274(b)(1));

\* \* \* \* \*

■ 99. In § 178.274, the definitions for Fine grain steel and Off-shore portable tank in paragraph (a)(3), the first four sentences in paragraph (b)(1), and paragraphs (c)(5), (c)(11), (d)(1)(ii), (d)(3), (f)(1)(v), (h)(5)(iv), (i)(1) introductory text, and (j)(6) are revised to read as follows:

**§ 178.274 Specifications for UN portable tanks.**

(a) \* \* \*

(3) \* \* \*

*Fine grain steel* means steel that has a ferritic grain size of 6 or finer when determined in accordance with ASTM E 112–96 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

*Offshore portable tank* means a portable tank specially designed for repeated use in the transportation of hazardous materials to, from and between offshore facilities. An offshore portable tank is designed and constructed in accordance with the Guidelines for the Approval of Containers Handled in Open Seas specified in the IMDG Code (IBR, see § 171.7 of this subchapter).

(b) \* \* \*

(1) The design temperature range for the shell must be -40 °C to -50 °C (-40 °F to 122 °F) for hazardous materials transported under normal conditions of transportation, except for portable tanks used for refrigerated liquefied gases where the minimum design temperature must not be higher than the lowest (coldest) temperature (for example, service temperature) of the contents during filling, discharge or transportation. For hazardous materials handled under elevated temperature conditions, the design temperature must not be less than the maximum temperature of the hazardous material during filling, discharge or transportation. More severe design temperatures must be considered for portable tanks subjected to severe climatic conditions (for example, portable tanks transported in arctic

regions). Shells must be designed and constructed in accordance with the requirements in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), except as limited or modified in this subchapter. \* \* \*

\* \* \* \* \*

(c) \* \* \*

(5) For shells of portable tanks used for liquefied compressed gases, the shell must consist of a circular cross section. Shells must be of a design capable of being stress-analyzed mathematically or experimentally by resistance strain gauges as specified in UG–101 of Section VIII of the ASME Code, or other methods approved by the Associate Administrator.

\* \* \* \* \*

(11) For the purpose of determining actual values for materials for sheet metal, the axis of the tensile test specimen must be at right angles (transversely) to the direction of rolling. The permanent elongation at fracture must be measured on test specimens of rectangular cross sections in accordance with ISO 6892 (IBR, see § 171.7 of this subchapter), using a 50 mm gauge length.

(d) \* \* \*

(1) \* \* \*

(ii) the minimum thickness determined in accordance with Section VIII of the ASME Code or other approved pressure vessel code; or

\* \* \* \* \*

(3) When additional protection against shell damage is provided in the case of portable tanks used for liquid and solid hazardous materials requiring test pressures less than 2.65 bar (265.0 kPa), subject to certain limitations specified in the UN Recommendations (IBR, see § 171.7 of this subchapter), the Associate Administrator may approve a reduced minimum shell thickness.

\* \* \* \* \*

(f) \* \* \*

(1) \* \* \*

(v) the rated flow capacity of the device in standard cubic meters of air per second (m<sup>3</sup>/s) determined according to ISO 4126–1 (IBR, see § 171.7 of this subchapter); and

\* \* \* \* \*

(h) \* \* \*

(5) \* \* \*

(iv) Protection of the shell against damage from impact or overturning by use of an ISO frame in accordance with ISO 1496–3 (IBR, see § 171.7 of this subchapter); and

\* \* \* \* \*

(i) \* \* \*

(1) Every portable tank must be fitted with a corrosion resistant metal plate

permanently attached to the portable tank in a conspicuous place and readily accessible for inspection. When the plate cannot be permanently attached to the shell, the shell must be marked with at least the information required by Section VIII of the ASME Code. At a minimum, the following information must be marked on the plate by stamping or by any other equivalent method: \* \* \*

\* \* \* \* \*

(j) \* \* \*

(6) A UN portable tank that meets the definition of "container" in the CSC (see 49 CFR 450.3(a)(2)) must be subjected to an impact test using a prototype representing each design type. The prototype portable tank must be shown to be capable of absorbing the forces resulting from an impact not less than 4 times (4 g) the maximum permissible gross mass of the fully loaded portable tank at a duration typical of the mechanical shocks experienced in rail transportation. A listing of standards describing methods acceptable for performing the impact test are provided in the UN Recommendations. UN portable tanks used for the dedicated transportation of "Helium, refrigerated liquid," UN1963 and "Hydrogen, refrigerated liquid," UN1966 that are marked "NOT FOR RAIL TRANSPORT" in letters of a minimum height of 10 cm (4 inches) on at least two sides of the portable tank are excepted from the 4 g impact test.

\* \* \* \* \*

■ 100. In § 178.276, the last sentence in paragraph (f) is revised to read as follows:

**§ 178.276 Requirements for the design, construction, inspection and testing of portable tanks intended for the transportation of non-refrigerated liquefied compressed gases.**

\* \* \* \* \*

(f) \* \* \* For gases that have critical temperatures near or below the temperature at the accumulating condition, the calculation of the pressure relief device delivery capacity must consider the additional thermodynamic properties of the gas, for example see CGA S-1.2 (IBR, see § 171.7 of this subchapter).

■ 101. In § 178.277, paragraphs (b)(2) and (b)(13) are revised to read as follows:

**§ 178.277 Requirements for the design, construction, inspection and testing of portable tanks intended for the transportation of refrigerated liquefied gases.**

(b) \* \* \*

(2) Portable tanks must be postweld heat treated and radiographed as

prescribed in Sections V and VIII of the ASME Code except that each tank constructed in accordance with part UHT in Section VIII 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 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. The postweld heat treatment must be as prescribed in Section VIII of the ASME Code, but in no event at less than 1,050 °F tank metal temperature.

\* \* \* \* \*

(13) The jacket of a vacuum-insulated double-wall tank must have either an external design pressure not less than 100 kPa (1 bar) gauge pressure calculated in accordance with Section VIII of the ASME Code or a calculated critical collapsing pressure of not less than 200 kPa (2 bar) gauge pressure. Internal and external reinforcements may be included in calculating the ability of the jacket to resist the external pressure.

\* \* \* \* \*

■ 102. In § 178.320, in paragraph (a) the definitions for "Constructed and certified in accordance with the ASME Code," "Constructed in accordance with the ASME Code," and "Maximum allowable working pressure or MAWP" are revised to read as follows:

**§ 178.320 General requirements applicable to all DOT specification cargo tank motor vehicles.**

(a) \* \* \*

*Constructed and certified in accordance with the ASME Code* means a cargo tank is constructed and stamped in accordance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), and is inspected and certified by an Authorized Inspector.

*Constructed in accordance with the ASME Code* means a cargo tank is constructed in accordance with Section VIII of the ASME Code with authorized exceptions (see §§ 178.346 through 178.348) and is inspected and certified by a Registered Inspector.

\* \* \* \* \*

*Maximum allowable working pressure or MAWP* means the maximum pressure allowed at the top of the tank in its normal operating position. The MAWP must be calculated as prescribed in Section VIII of the ASME Code. In use, the MAWP must be greater than or equal to the maximum lading pressure conditions prescribed in § 173.33 of this

subchapter for each material transported.

\* \* \* \* \*

■ 103. In § 178.337-1, paragraphs (a)(2) and (f) are revised to read as follows:

**§ 178.337-1 General requirements.**

(a) \* \* \*

(2) Designed, constructed, certified, and stamped in accordance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

(f) *Postweld heat treatment.* Postweld heat treatment must be as prescribed in the ASME Code except that each cargo tank constructed in accordance with Part UHT of Section VIII of the ASME Code must be postweld heat treated. Each chlorine cargo tank must be fully radiographed and postweld heat treated in accordance with the provisions in Section VIII of the ASME Code under which it is constructed. Where postweld heat treatment is required, the cargo tank must be treated as a unit after completion of all the welds in and/or to the shells and heads. The method must be as prescribed in Section VIII of the ASME Code. Welded attachments to pads may be made after postweld heat treatment. A cargo tank used for anhydrous ammonia must be postweld heat treated. The postweld heat treatment must be as prescribed in Section VIII of the ASME Code, but in no event at less than 1,050 °F cargo tank metal temperature.

\* \* \* \* \*

■ 104. In § 178.337-2, paragraph (a)(1), the first sentence in paragraph (a)(2), and paragraphs (b)(1)(i), (b)(2)(i), and (b)(2)(ii) are revised to read as follows:

**§ 178.337-2 Material.**

(a) \* \* \*

(1) All material used for construction of the cargo tank and appurtenances must be suitable for use with the commodities to be transported therein and must conform to the requirements in Section II of the ASME Code (IBR, see § 171.7 of this subchapter) and/or requirements of the American Society for Testing and Materials in all respects.

(2) Impact tests are required on steel used in the fabrication of each cargo tank constructed in accordance with part UHT in Section VIII of the ASME Code. \* \* \*

\* \* \* \* \*

(b) \* \* \*

(1) \* \* \*

(i) Material shall conform to ASTM A 300, "Steel Plates for Pressure Vessels for Service at Low Temperatures" (IBR, see § 171.7 of this subchapter); \* \* \*

\* \* \* \* \*

(2) \* \* \*

(i) Material shall conform to ASTM A 612 (IBR, see § 171.7 of this subchapter), Grade B or A 516/A 516M (IBR, see § 171.7 of this subchapter), Grade 65 or 70;

(ii) Material shall meet the Charpy V-notch test requirements of ASTM A 20/A 20M (IBR, see § 171.7 of this subchapter); and

\* \* \* \* \*

■ 105. In § 178.337-3, paragraphs (a)(1), (b), the last sentence in paragraph (g)(2), and paragraph (g)(3)(i) are revised to read as follows:

**§ 178.337-3 Structural integrity.**

(a) \* \* \*

(1) Except as provided in paragraph (d) of this section, the maximum calculated design stress at any point in the cargo tank may not exceed the maximum allowable stress value prescribed in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), or 25 percent of the tensile strength of the material used.

\* \* \* \* \*

(b) *Static design and construction.* (1) The static design and construction of each cargo tank must be in accordance with Section VIII of the ASME Code. The cargo tank design must include calculation of stresses generated by design pressure, the weight of lading, the weight of structure supported by the cargo tank wall, and the effect of temperature gradients resulting from lading and ambient temperature extremes. When dissimilar materials are used, their thermal coefficients must be used in calculation of thermal stresses.

(2) Stress concentrations in tension, bending and torsion which occur at pads, cradles, or other supports must be considered in accordance with appendix G in Section VIII of the ASME Code.

\* \* \* \* \*

(g) \* \* \*

(2) \* \* \* Attachments meeting the requirements of this paragraph are not authorized for cargo tanks constructed under part UHT in Section VIII of the ASME Code.

(3) \* \* \*

(i) Be fabricated from material determined to be suitable for welding to both the cargo tank material and the material of the appurtenance or structural support member; a Design Certifying Engineer must make this determination considering chemical and physical properties of the materials and must specify filler material conforming to the requirements in Section VIII of

the ASME Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 106. In § 178.337-4, paragraph (a), the first three sentences in paragraph (b), and paragraph (e) are revised to read as follows:

**§ 178.337-4 Joints.**

(a) Joints shall be as required in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), with all undercutting in shell and head material repaired as specified therein.

(b) Welding procedure and welder performance must be in accordance with Section IX of the ASME Code. In addition to the essential variables named therein, the following must be considered as essential variables: Number of passes; thickness of plate; heat input per pass; and manufacturer's identification of rod and flux. When fabrication is done in accordance with part UHT in Section VIII of the ASME Code, filler material containing more than 0.08 percent vanadium must not be used.

\* \* \* \* \*

(e) The maximum tolerance for misalignment and butting up shall be in accordance with the requirement in Section VIII of the ASME Code.

\* \* \* \* \*

■ 107. In § 178.337-6, paragraph (a) is revised to read as follows:

**§ 178.337-6 Closure for manhole.**

(a) Each cargo tank marked or certified after April 21, 1994, must be provided with a manhole conforming to paragraph UG-46(g)(1) and other applicable requirements in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), except that a cargo tank constructed of NQT steel having a capacity of 3,500 water gallons or less may be provided with an inspection opening conforming to paragraph UG-46 and other applicable requirements of the ASME Code instead of a manhole.

\* \* \* \* \*

■ 108. In § 178.337-8, paragraphs (b)(1) and (b)(2) are revised to read as follows:

**§ 178.337-8 Openings, inlets, and outlets.**

\* \* \* \* \*

(b) \* \* \*

(1) A valve conforming to The Chlorine Institute, Inc., Dwg. 101-7 (IBR, see § 171.7 of this subchapter), must be installed under each liquid angle valve.

(2) A valve conforming to The Chlorine Institute, Inc., Dwg. 106-6 (IBR, see § 171.7 of this subchapter),

must be installed under each gas angle valve.

\* \* \* \* \*

■ 109. In § 178.337-9, paragraph (b)(8) is revised to read as follows:

**§ 178.337-9 Pressure relief devices, piping, valves, hoses, and fittings.**

\* \* \* \* \*

(b) \* \* \*

(8) *Chlorine cargo tanks.* Angle valves on cargo tanks intended for chlorine service must conform to the standards of The Chlorine Institute, Inc., Dwg. 104-8 (IBR, see § 171.7 of this subchapter). Before installation, each angle valve must be tested for leakage at not less than 225 psig using dry air or inert gas.

\* \* \* \* \*

■ 110. In § 178.337-10, paragraph (d)(1) is revised to read as follows:

**§ 178.337-10 Accident damage protection.**

(d) \* \* \*

(1) Tanks manufactured on or before December 31, 1974: Dwg. 137-1 (IBR, see § 171.7 of this subchapter), or Dwg. 137-2 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 111. In § 178.337-16, paragraphs (a), (b)(1), and (b)(2) are revised to read as follows:

**§ 178.337-16 Testing.**

(a) *Inspection and tests.* Inspection of materials of construction of the cargo tank and its appurtenances and original test and inspection of the finished cargo tank and its appurtenances must be as required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) and as further required by this specification, except that for cargo tanks constructed in accordance with part UHT in Section VIII of the ASME Code the original test pressure must be at least twice the cargo tank design pressure.

(b) \* \* \*

(1) Each cargo tank constructed in accordance with part UHT in Section VIII of the ASME Code must be subjected, after postweld heat treatment and hydrostatic tests, to a wet fluorescent magnetic particle inspection to be made on all welds in or on the cargo tank shell and heads both inside and out. The method of inspection must conform to appendix 6 in Section VIII of the ASME Code except that permanent magnets shall not be used.

(2) On cargo tanks of over 3,500 gallons water capacity other than those described in paragraph (b)(1) of this section unless fully radiographed, a test must be made of all welds in or on the shell and heads both inside and outside

by either the wet fluorescent magnetic particle method conforming to appendix U in Section VIII of the ASME Code, liquid dye penetrant method, or ultrasonic testing in accordance with appendix 12 in Section VIII of the ASME Code. Permanent magnets must not be used to perform the magnetic particle inspection.

\* \* \* \* \*

■ 112. In § 178.337–18, paragraph (a) introductory text is revised to read as follows:

**§ 178.337–18 Certification.**

(a) At or before the time of delivery, the cargo tank motor vehicle manufacturer must supply and the owner must obtain, a cargo tank motor vehicle manufacturer's data report as required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), and a certificate stating that the completed cargo tank motor vehicle conforms in all respects to Specification MC 331 and the ASME Code. The registration numbers of the manufacturer, the Design Certifying Engineer, and the Registered Inspector, as appropriate, must appear on the certificates (see subpart F, part 107 in subchapter A of this chapter).

\* \* \* \* \*

■ 113. In § 178.338–1, paragraphs (a)(1) and (c) are revised to read as follows:

**§ 178.338–1 General requirements.**

(a) \* \* \*

(1) *Design pressure* means the "MAWP" as used in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), and is the gauge pressure at the top of the tank.

\* \* \* \* \*

(c) Each tank must be designed, constructed, certified, and stamped in accordance with Section VIII of the ASME Code.

\* \* \* \* \*

■ 114. In § 178.338–2, paragraphs (a), (c), and (e) are revised to read as follows:

**§ 178.338–2 Material.**

(a) All material used in the construction of a tank and its appurtenances that may come in contact with the lading must be compatible with the lading to be transported. All material used for tank pressure parts must conform to the requirements in Section II of the ASME Code (IBR, see § 171.7 of this subchapter). All material used for evacuated jacket pressure parts must conform to the chemistry and steelmaking practices of one of the material specifications in Section II of the ASME Code or the following ASTM Specifications: A 242, A 441, A 514, A

572, A 588, A 606, A 607, A 633, A 715 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

(c) Impact tests are required on all tank materials, except materials that are excepted from impact testing by the ASME Code, and must be performed using the procedure prescribed in Section VIII of the ASME Code.

\* \* \* \* \*

(e) Each tank constructed in accordance with part UHT in Section VIII of the ASME Code must be postweld heat treated as a unit after completion of all welds to the shell and heads. Other tanks must be postweld heat treated as required in Section VIII of the ASME Code. For all tanks the method must be as prescribed in the ASME Code. Welded attachments to pads may be made after postweld heat treatment.

\* \* \* \* \*

■ 115. In § 178.338–3, paragraph (b), the last sentence in paragraph (g)(2), and paragraph (g)(3)(i) are revised to read as follows:

**§ 178.338–3 Structural integrity.**

\* \* \* \* \*

(b) *Static design and construction.* (1) The static design and construction of each tank must be in accordance with appendix G in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter). The tank design must include calculation of stress due to the design pressure, the weight of lading, the weight of structures supported by the tank wall, and the effect of temperature gradients resulting from lading and ambient temperature extremes. When dissimilar materials are used, their thermal coefficients must be used in calculation of the thermal stresses.

(2) Stress concentrations in tension, bending, and torsion which occur at pads, cradles, or other supports must be considered in accordance with appendix G in Section VIII of the ASME Code.

\* \* \* \* \*

(g) \* \* \*

(2) \* \* \* Attachments meeting the requirements of this paragraph are not authorized for cargo tanks constructed under part UHT in Section VIII of the ASME Code.

\* \* \* \* \*

(3) \* \* \*

(i) Be fabricated from material determined to be suitable for welding to both the cargo tank material and the material of the appurtenance or structural support member; a Design Certifying Engineer must make this determination considering chemical and

physical properties of the materials and must specify filler material conforming to the requirements in Section IX of the ASME Code (IBR, see § 171.7 of this subchapter).

■ 116. In § 178.338–4, paragraph (a) is revised to read as follows:

**§ 178.338–4 Joints.**

(a) All joints in the tank, and in the jacket if evacuated, must be as prescribed in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), except that a butt weld with one plate edge offset is not authorized.

\* \* \* \* \*

■ 117. In § 178.338–5, paragraph (a) is revised to read as follows:

**§ 178.338–5 Stiffening rings.**

(a) A tank is not required to be provided with stiffening rings, except as prescribed in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 118. In § 178.338–6, paragraph (a) is revised to read as follows:

**§ 178.338–6 Manholes.**

(a) Each tank in oxygen service must be provided with a manhole as prescribed in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 119. In § 178.338–13, the last three sentences in paragraph (a) introductory text and the last two sentences in paragraph (b) introductory text are revised to read as follows:

**§ 178.338–13 Supports and anchoring.**

\* \* \* \* \*

(a) \* \* \* The design calculations for the supports and load-bearing tank or jacket, and the support attachments must include beam stress, shear stress, torsion stress, bending moment, and acceleration stress for the loaded vehicle as a unit, using a safety factor of four, based on the tensile strength of the material, and static loading that uses the weight of the cargo tank and its attachments when filled to the design weight of the lading (see appendix G in Section VIII of the ASME Code) (IBR, see § 171.7 of this subchapter), multiplied by the following factors. The effects of fatigue must also be considered in the calculations. Minimum static loadings must be as follows:

(b) \* \* \* Static loadings must take into consideration the weight of the tank and the structural members when the tank is filled to the design weight of

lading (see appendix G in Section VIII of the ASME Code), multiplied by the following factors. When load rings in the jacket are used for supporting the tank, they must be designed to carry the fully loaded tank at the specified static loadings, plus external pressure. Minimum static loadings must be as follows:

\* \* \* \* \*

■ 120. In § 178.338–15 is revised to read as follows:

**§ 178.338–15 Cleanliness.**

A cargo tank constructed for oxygen service must be thoroughly cleaned to remove all foreign material in accordance with CGA G–4.1 (IBR, see § 171.7 of this subchapter). All loose particles from fabrication, such as weld beads, dirt, grinding wheel debris, and other loose materials, must be removed prior to the final closure of the manhole of the tank. Chemical or solvent cleaning with a material compatible with the intending lading must be performed to remove any contaminants likely to react with the lading.

■ 121. In § 178.338–16, paragraph (a), the first sentence in paragraph (c), and paragraph (d) are revised to read as follows:

**§ 178.338–16 Inspection and testing.**

(a) *General.* The material of construction of a tank and its appurtenances must be inspected for conformance to Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter). The tank must be subjected to either a hydrostatic or pneumatic test. The test pressure must be one and one-half times the sum of the design pressure, plus static head of lading, plus 101.3 kPa (14.7 psi) if subjected to external vacuum, except that for tanks constructed in accordance with Part UHT in Section VIII of the ASME Code the test pressure must be twice the design pressure.

\* \* \* \* \*

(c) *Weld inspection.* All tank shell or head welds subject to pressure shall be radiographed in accordance with Section VIII of the ASME Code. \* \* \*

(d) *Defect repair.* All cracks and other defects must be repaired as prescribed in Section VIII of the ASME Code. The welder and the welding procedure must be qualified in accordance with Section IX of the ASME Code (IBR, see § 171.7 of this subchapter). After repair, the tank must again be postweld heat-treated, if such heat treatment was previously performed, and the repaired areas must be retested.

\* \* \* \* \*

■ 122. In § 178.338–17, paragraph (b) is revised to read as follows:

**§ 178.338–17 Pumps and compressors.**

\* \* \* \* \*

(b) A valve or fitting made of aluminum with internal rubbing or abrading aluminum parts that may come in contact with oxygen (cryogenic liquid) may not be installed on any cargo tank used to transport oxygen (cryogenic liquid) unless the parts are anodized in accordance with ASTM B 580 (IBR, see § 171.7 of this subchapter).

■ 123. In § 178.338–18, paragraphs (a)(1) and (a)(3) are revised to read as follows:

**§ 178.338–18 Marking.**

(a) \* \* \*

(1) The plates must be legibly marked by stamping, embossing, or other means of forming letters into the metal of the plate, with the information required in paragraphs (b) and (c) of this section, in addition to that required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), in characters at least 3/16 inch high (parenthetical abbreviations may be used). All plates must be maintained in a legible condition.

\* \* \* \* \*

(3) The information required for both the name and specification plate may be displayed on a single plate. If the information required by this section is displayed on a plate required by Section VIII of the ASME Code, the information need not be repeated on the name and specification plates.

\* \* \* \* \*

■ 124. In § 178.338–19, paragraph (a)(1) is revised to read as follows:

**§ 178.338–19 Certification.**

(a) \* \* \*

(1) The tank manufacturer's data report as required by the ASME Code (IBR, see § 171.7 of this subchapter), and a certificate bearing the manufacturer's vehicle serial number stating that the completed cargo tank motor vehicle conforms to all applicable requirements of Specification MC 338, including Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter) in effect on the date (month, year) of certification. The registration numbers of the manufacturer, the Design Certifying Engineer, and the Registered Inspector, as appropriate, must appear on the certificates (see subpart F, part 107 in subchapter B of this chapter).

\* \* \* \* \*

■ 125. In § 178.345–1, paragraph (f) is revised to read as follows:

**§ 178.345–1 General requirements.**

\* \* \* \* \*

(f) Each cargo tank must be designed and constructed in conformance with the requirements of the applicable cargo tank specification. Each DOT 412 cargo tank with a "MAWP" greater than 15 psig, and each DOT 407 cargo tank with a maximum allowable working pressure greater than 35 psig must be "constructed and certified in conformance with Section VIII of the ASME Code" (IBR, see § 171.7 of this subchapter) except as limited or modified by the applicable cargo tank specification. Other cargo tanks must be "constructed in accordance with Section VIII of the ASME Code," except as limited or modified by the applicable cargo tank specification.

\* \* \* \* \*

■ 126. In § 178.345–2, paragraph (a) introductory text and paragraph (a)(1) are revised to read as follows:

**§ 178.345–2 Material and material thickness.**

(a) All material for shell, heads, bulkheads, and baffles must conform to Section II of the ASME Code (IBR, see § 171.7 of this subchapter) except as follows:

(1) The following steels are also authorized for cargo tanks "constructed in accordance with the ASME Code", Section VIII.

\* \* \* \* \*

■ 127. In § 178.345–3, paragraphs (a)(1), (b), (b)(1), and (b)(2) are revised to read as follows:

**§ 178.345–3 Structural integrity.**

(a) \* \* \*

(1) The maximum calculated design stress at any point in the cargo tank wall may not exceed the maximum allowable stress value prescribed in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), or 25 percent of the tensile strength of the material used at design conditions.

\* \* \* \* \*

(b) *ASME Code design and construction.* The static design and construction of each cargo tank must be in accordance with Section VIII of the ASME Code. The cargo tank design must include calculation of stresses generated by the MAWP, the weight of the lading, the weight of structures supported by the cargo tank wall and the effect of temperature gradients resulting from lading and ambient temperature extremes. When dissimilar materials are used, their thermal coefficients must be used in the calculation of thermal stresses.

(1) Stress concentrations in tension, bending and torsion which occur at pads, cradles, or other supports must be considered in accordance with appendix G in Section VIII of the ASME Code.

(2) Longitudinal compressive buckling stress for ASME certified vessels must be calculated using paragraph UG-23(b) in Section VIII of the ASME Code. For cargo tanks not required to be certified in accordance with the ASME Code, compressive buckling stress may be calculated using alternative analysis methods which are accurate and verifiable. When alternative methods are used, calculations must include both the static loads described in this paragraph and the dynamic loads described in paragraph (c) of this section.

■ 128. In § 178.345-4, paragraph (a) is revised to read as follows:

**§ 178.345-4 Joints.**

(a) All joints between the cargo tank shell, heads, baffles, baffle attaching rings, and bulkheads must be welded in conformance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

■ 129. In § 178.345-7, paragraphs (a)(1) and (d)(3) are revised to read as follows:

**§ 178.345-7 Circumferential reinforcements.**

(a) \* \* \*  
(1) Circumferential reinforcement must be located so that the thickness and tensile strength of the shell material in combination with the frame and reinforcement produces structural integrity at least equal to that prescribed in § 178.345-3 and in such a manner that the maximum unreinforced portion of the shell does not exceed 60 inches. For cargo tanks designed to be loaded by vacuum, spacing of circumferential reinforcement may exceed 60 inches provided the maximum unreinforced portion of the shell conforms with the requirements in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

(d) \* \* \*  
(3) When used to meet the vacuum requirements of this section, ring stiffeners must be as prescribed in Section VIII of the ASME Code.

■ 130. In § 178.345-14, the first sentence of paragraph (a) is revised to read as follows:

**§ 178.345-14 Marking.**

(a) *General.* The manufacturer shall certify that each cargo tank motor vehicle has been designed, constructed and tested in accordance with the applicable Specification DOT 406, DOT 407 or DOT 412 (§§ 178.345, 178.346, 178.347, 178.348) cargo tank requirements and, when applicable, with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter).

■ 131. In § 178.345-15, paragraph (b)(2) is revised to read as follows:

**§ 178.345-15 Certification.**

(2) For each ASME cargo tank, a cargo tank manufacturer's data report as required by Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter). For each cargo tank motor vehicle, a certificate signed by a responsible official of the manufacturer and a Registered Inspector certifying that the cargo tank motor vehicle is constructed, tested and completed in conformance with the applicable specification.

■ 132. In § 178.346-1, paragraphs (d), (d)(1), (d)(8), and (d)(10) are revised to read as follows:

**§ 178.346-1 General requirements.**

(d) Each cargo tank must be "constructed in accordance with Section VIII of the ASME Code" (IBR, see § 171.7 of this subchapter) except as modified herein:

(1) The record-keeping requirements contained in the ASME Code Section VIII do not apply. Parts UG-90 through 94 in Section VIII do not apply. Inspection and certification must be made by an inspector registered in accordance with subpart F of part 107.

(8) The following paragraphs in parts UG and UW in Section VIII of the ASME Code do not apply: UG-11, UG-12, UG-22(g), UG-32(e), UG-34, UG-35, UG-44, UG-76, UG-77, UG-80, UG-81, UG-96, UG-97, UW-12, UW-13(b)(2), UW-13.1(f) and the dimensional requirements found in Figure UW-13.1.

(10) The requirements of paragraph UW-9(d) in Section VIII of the ASME Code do not apply.

■ 133. In § 178.346-3, paragraph (b)(3) is revised to read as follows:

**§ 178.346-3 Pressure relief.**

(b) \* \* \*

(3) Notwithstanding the requirements in § 178.345-10(b), after August 31, 1996, each pressure relief valve must be able to withstand a dynamic pressure surge reaching 30 psig above the design set pressure and sustained above the set pressure for at least 60 milliseconds with a total volume of liquid released not exceeding 1 L before the relief valve recloses to a leak-tight condition. This requirement must be met regardless of vehicle orientation. This capability must be demonstrated by testing. TTMA RP No. 81 (IBR, see § 171.7 of this subchapter), cited at § 178.345-10(b)(3)(i), is an acceptable test procedure.

■ 134. In § 178.347-1, paragraphs (c), (d), (d)(1) and (d)(8) are revised to read as follows:

**§ 178.347-1 General requirements.**

(c) Any cargo tank built to this specification with a MAWP greater than 35 psig and each tank designed to be loaded by vacuum must be constructed and certified in conformance with Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter). The external design pressure for a cargo tank loaded by vacuum must be at least 15 psi.

(d) Each cargo tank built to this specification with MAWP of 35 psig or less must be "constructed in accordance with Section VIII of the ASME Code" except as modified.

(1) The record-keeping requirements contained in Section VIII of the ASME Code do not apply. The inspection requirements of parts UG-90 through 94 do not apply. Inspection and certification must be made by an inspector registered in accordance with subpart F of part 107.

(8) The following paragraphs in parts UG and UW in Section VIII the ASME Code do not apply: UG-11, UG-12, UG-22(g), UG-32(e), UG-34, UG-35, UG-44, UG-76, UG-77, UG-80, UG-81, UG-96, UG-97, UW-12, UW-13(b)(2), UW-13.1(f), and the dimensional requirements found in Figure UW-13.1.

■ 135. In § 178.348-1, paragraphs (e)(1), (e)(2), (e)(2)(i) and (e)(2)(viii) are revised to read as follows:

**§ 178.348-1 General requirements.**

(e) \* \* \*  
(1) MAWP greater than 15 psig must be "constructed and certified in conformance with Section VIII of the

ASME Code" (IBR, see § 171.7 of this subchapter); or

(2) MAWP of 15 psig or less must be "constructed in accordance with Section VIII of the ASME Code," except as modified herein:

(i) The recordkeeping requirements contained in Section VIII of the ASME Code do not apply. Parts UG-90 through 94 in Section VIII do not apply. Inspection and certification must be made by an inspector registered in accordance with subpart F of part 107.

(viii) The following paragraphs in parts UG and UW in Section VIII of the ASME Code do not apply: UG-11, UG-12, UG-22(g), UG-32(e), UG-34, UG-35, UG-44, UG-76, UG-77, UG-80, UG-81, UG-96, UG-97, UW-13(b)(2), UW-13.1(f), and the dimensional requirements found in Figure UW-13.1.

■ 136. In § 178.356-1, paragraph (e) is revised to read as follows:

**§ 178.356-1 General requirements.**

(e) Drawings in DOE CAPE-1662, Rev. 1 and Supplement 1 (IBR, see § 171.7 of this subchapter), which include bills of material, are a part of this specification.

■ 137. In § 178.356-2, paragraph (a) introductory text, and paragraphs (d) and (e) are revised to read as follows:

**§ 178.356-2 Materials of construction and other requirements.**

(a) Phenolic foam insulation must be fire-resistant and fabricated in accordance with USDOE Material and Equipment Specification SP-9, Rev. 1 and Supplement (IBR, see § 171.7 of this subchapter), which is a part of this specification. (Note: Packagings manufactured under USAEC Specification SP-9 and Rev. 1 thereto are authorized for continued manufacture and use.) A 13.7 cm (5.4-inch) minimum thickness of foam must be provided over the entire liner except:

(d) Vent holes 5 mm (0.2-inch) diameter must be drilled in the outer shell to provide pressure relief during the insulation foaming and in the event of a fire. These holes, which must be drilled in all areas of the shell that mate with the foam insulation, must be spaced in accordance with DOE CAPE-1662, Rev. 1 and Supplement 1 (IBR, see § 171.7 of this subchapter).

(e) Welding must be by a fusion welding process in accordance with American Welding Society Codes B-3.0 and D-1.0 (IBR, see § 171.7 of this subchapter). Body seams and joints for

the liner or shell must be continuous welds.

■ 138. In § 178.358-1, paragraphs (a)(1) and (a)(2) are revised to read as follows:

**§ 178.358-1 General requirements.**

(1) Specification 21PF-1 overpacks includes the series of 21PF-1, 21PF-1A, and 21PF-1B models. Details of the three models are included in DOE CAPE-1662, Rev. 1 and Supplement 1 (IBR, see § 171.7 of this subchapter).

(2) Drawings in CAPE-1662, Rev. 1 and Supplement 1, that include bills of materials, and KSS-471 (IBR, see § 171.7 of this subchapter), are a part of this specification.

■ 139. In § 178.358-2, paragraphs (a) introductory text, (b), and (f) are revised to read as follows:

**§ 178.358-2 Materials of construction and other requirements.**

(a) Phenolic foam insulation must be fire resistant and fabricated in accordance with USDOE Material and Equipment Specification SP-9, Rev. 1 and Supplement (IBR, see § 171.7 of this subchapter), which is a part of this specification. (Note: Packagings manufactured under USAEC Specification SP-9, and Rev. 1 thereto are authorized for continued manufacture and use.) A 14 cm (5.5-inch) minimum thickness of foam must be provided over the entire liner except where:

(b) Gaskets for inner liner, outer shell, or where otherwise specified in DOE CAPE-1662, Rev. 1 (IBR, see § 171.7 of this subchapter), must be as specified in DOE CAPE-1662, Rev. 1.

(f) Welding must be by a fusion process in accordance with the American Welding Society Codes B-3.0 and D-1.0 (IBR, see § 171.7 of this subchapter). Body seams and joints for the liner and shell must be continuous welds.

■ 140. In § 178.358-3, paragraphs (a) and (b)(5) are revised to read as follows:

**§ 178.358-3 Modification of Specification 21PF-1 overpacks.**

(a) Each Specification 21PF-1 overpack for which construction began or was completed before April 1, 1989, in conformance with drawing E-S-31536-J, Rev. 1 of DOE CAPE-1662 (IBR, see § 171.7 of this subchapter), must be modified in conformance with drawing S1E-31536-J1-D of DOE

CAPE-1662, Rev. 1, Supplement 1, before April 1, 1991.

(5) As an alternate moisture measurement, a calibrated moisture meter reading for 20 percent maximum water content may be used to indicate an end point in the drying cycle, which is detailed in report "Renovation of DOT Specification 21PF-1 Protective Shipping Packages," Report No. K-2057, Revision 1, November 21, 1986, available from the USDOE and part of USDOE Report No. KSS-471 (IBR, see § 171.7 of this subchapter).

■ 141. In § 178.358-4, paragraph (a) is revised to read as follows:

**§ 178.358-4 Construction of Specification 21PF-1B overpacks.**

(a) Each Specification 21PF-1 overpack for which construction began after March 31, 1989, must meet the requirements of Specification 21PF-1B, in conformance with drawings E-S-31536-J-P, and S1E-31536-J2-B of DOE CAPE-1662, Rev. 1, Supplement 1 (IBR, see § 171.7 of this subchapter).

■ 142. In § 178.360-4, paragraphs (a)(2) and (a)(2)(i) are revised to read as follows:

**§ 178.360-4 Closure devices.**

(2) An opening may be closed by a securely bolted flange and leak-tight gasket. Each flange must be welded or brazed to the body of the 2R vessel per (ANSI) Standard B16.5 or (AWWA) Standard C207-55, section 10 (IBR, see § 171.7 of this subchapter). A torque wrench must be used in securing the flange with a corresponding torque of no more than twice the force necessary to seal the selected gasket. Gasket material must be capable of withstanding up to 149 °C (300 °F) without loss of efficiency. The flange, whether of ferrous or nonferrous metal, must be constructed from the same metal as the vessel and must meet the dimensional and fabrication specifications for welded construction as follows:

(i) Pipe flanges described in Tables 13, 14, 16, 17, 19, 20, 22, 23, 25 and 26 of ANSI B16.5 (IBR, see § 171.7 of this subchapter).

■ 143. In § 178.503, paragraph (a)(9)(i) is revised to read as follows:

**§ 178.503 Marking of packagings.**

(i) Metal drums or jerricans must be marked with the nominal thickness of

the metal used in the body. The marked nominal thickness must not exceed the minimum thickness of the steel used by more than the thickness tolerance stated in ISO 3574 (IBR, see § 171.7 of this subchapter). (See appendix C of this part.) The unit of measure is not required to be marked. When the nominal thickness of either head of a metal drum is thinner than that of the body, the nominal thickness of the top head, body, and bottom head must be marked (e.g., “1.0–1.2–1.0” or “0.9–1.0–1.0”).

\* \* \* \* \*

■ 144. In § 178.516, paragraph (b)(1) is revised to read as follows:

**§ 178.516 Standards for fiberboard boxes.**

\* \* \* \* \*

(b) \* \* \*

(1) Strong, solid or double-faced corrugated fiberboard (single or multi-wall) must be used, appropriate to the capacity and intended use of the box. The water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g per square meter (0.0316 pounds per square foot)—see ISO 535 (IBR, see § 171.7 of this subchapter). Fiberboard must have proper bending qualities. Fiberboard must be cut, creased without cutting through any thickness of fiberboard, and slotted so as to permit assembly without cracking, surface breaks, or undue bending. The fluting of corrugated fiberboard must be firmly glued to the facings.

\* \* \* \* \*

■ 145. In § 178.601, paragraph (g)(8) introductory text is revised to read as follows:

**§ 178.601 General requirements.**

(g) \* \* \*

(8) For a steel drum with a capacity greater than 50 L (13 gallons) manufactured from low carbon, cold-rolled sheet steel meeting ASTM designations A 366/A 366M or A 568/A 568M variations in elements other than the following design elements are considered minor and do not constitute a different drum design type, or “different packaging” as defined in paragraph (c) of this section for which design qualification testing and periodic retesting are required. Minor variations authorized without further testing include changes in the identity of the supplier of component material made to the same specifications, or the original manufacturer of a DOT specification or UN standard drum to be

remanufactured. A change in any one or more of the following design elements constitutes a different drum design type:

\* \* \* \* \*

■ 146. In § 178.707, paragraph (c)(4)(iv)(A) is revised to read as follows:

**§ 178.707 Standards for composite IBCs.**

\* \* \* \* \*

(c) \* \* \*

(4) \* \* \*

(iv) \* \* \*

(A) Water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 grams per square meter (0.0316 pounds per square foot)—see ISO 535 (E) (IBR, see § 171.7 of this subchapter). Fiberboard must have proper bending qualities. Fiberboard must be cut, creased without cutting through any thickness of fiberboard, and slotted so as to permit assembly without cracking, surface breaks, or undue bending. The fluting of corrugated fiberboard must be firmly glued to the facings.

\* \* \* \* \*

■ 147. In § 178.708, paragraphs (c)(2) introductory text and (c)(2)(i) are revised to read as follows:

**§ 178.708 Standards for fiberboard IBCs.**

\* \* \* \* \*

(c) \* \* \*

(2) Fiberboard IBCs must be constructed of strong, solid or double-faced corrugated fiberboard (single or multiwall) that is appropriate to the capacity of the outer packaging and its intended use. Water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 grams per square meter (0.0316 pounds per square foot)—see ISO 535 (E) (IBR, see § 171.7 of this subchapter). Fiberboard must have proper bending qualities. Fiberboard must be cut, creased without cutting through any thickness of fiberboard, and slotted so as to permit assembly without cracking, surface breaks, or undue bending. The fluting of corrugated fiberboard must be firmly glued to the facings.

(i) The walls, including top and bottom, must have a minimum puncture resistance of 15 Joules (11 foot-pounds of energy) measured according to ISO 3036 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 148. In § 178.801, paragraph (i) is revised to read as follows:

**§ 178.801 General requirements.**

\* \* \* \* \*

(i) *Approval of equivalent packagings.* An IBC that differs from the standards in subpart N of this part, or that is tested using methods other than those specified in this subpart, may be used if approved by the Associate Administrator. Such IBCs must be shown to be equally effective, and testing methods used must be equivalent. A large packaging, as defined in § 171.8 of this subchapter, may be used if approved by the Associate Administrator. The large packaging must conform to the construction standards, performance testing and packaging marking requirements specified in the UN Recommendations (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 149. In Appendix A to Part 178, footnote 2 in Table 1 is revised to read as follows:

**Appendix A to Part 178—Specifications for Steel**

\* \* \* \* \*

Table 1 \* \* \*

<sup>2</sup> Ferritic grain size 6 or finer according to ASTM E 112–96 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 150. In Appendix C to Part 178, the introductory paragraph is revised to read as follows:

**Appendix C to Part 178—Nominal and Minimal Thicknesses of Steel Drums and Jerricans**

For each listed packaging capacity, the following table compares the ISO 3574 (IBR, see § 171.7 of this subchapter) nominal thickness with the corresponding ISO 3574 minimum thickness.

\* \* \* \* \*

**PART 179—SPECIFICATIONS FOR TANK CARS**

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

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

**PART 179—[AMENDED]**

■ 151. In Part 179 amend the following sections by removing the parenthetical phrase “(incorporated by reference; see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in each of the following places:

- 179.100–10(c)
- 179.102–4(a)(1)
- 179.102–17(b)(1)

■ 152. In § 179.2, paragraph (a)(8) is revised to read as follows:

**§ 179.2 Definitions and abbreviations.**

(a) \* \* \*  
 (8) *NPT* means an American Standard Taper Pipe Thread conforming to the requirements of NBS Handbook H-28 (IBR, see § 171.7 of this subchapter).

■ 153. Section 179.6 is revised to read as follows:

**§ 179.6 Repairs and alterations.**

For procedure to be followed in making repairs or alterations, see appendix R of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

■ 154. In § 179.7, paragraph (b)(8) is revised to read as follows:

**§ 179.7 Quality assurance program.**

(b) \* \* \*  
 (8) Provisions indicating that the requirements of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter), apply.

■ 155. In § 179.15, paragraphs (a), (c), (d), and (h) are revised to read as follows:

**§ 179.15 Pressure relief devices.**

(a) *Performance standard.* Each tank must have a pressure relief device, made of materials compatible with the lading, having sufficient flow capacity to

prevent pressure build-up in the tank to no more than the flow rating pressure of the pressure relief device in fire conditions as defined in appendix A of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

(c) *Flow capacity of pressure relief devices.* The total flow capacity of each reclosing and nonreclosing pressure relief device must conform to appendix A of the AAR Specifications for Tank Cars.

(d) *Flow capacity tests.* The manufacturer of any reclosing or nonreclosing pressure relief device must design and test the device in accordance with appendix A of the AAR Specifications for Tank Cars.

(h) *Marking of pressure relief devices.* Each pressure relief device and rupture disc must be permanently marked in accordance with the appendix A of the AAR Specifications for Tank Cars.

■ 156. In § 179.16, paragraphs (c)(2) and (c)(3) are revised to read as follows:

**§ 179.16 Tank-head puncture-resistance systems.**

(2) The design and test requirements of the full-head protection (shields) or full tank-head jackets must meet the impact test requirements in Section 5.3 of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

(3) The workmanship must meet the requirements in Section C, Part II, Chapter 5, of the AAR Specifications for Design, Fabrication, and Construction of Freight Cars (IBR, see § 171.7 of this subchapter).

■ 157. Section 179.20 is revised to read as follows:

**§ 179.20 Service equipment; protection systems.**

If an applicable tank car specification authorizes location of filling or discharge connections in the bottom shell, the connections must be designed, constructed, and protected according to paragraphs E9.00 and E10.00 of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

■ 158. In § 179.22, paragraph (a) is revised to read as follows:

**§ 179.22 Marking.**

(a) Each tank car must be marked according to the requirements in appendix C of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

■ 159. In § 179.100-7, the table in paragraph (a), paragraph (b) introductory text, and paragraph (c)(2)(i) introductory text are revised to read as follows:

**§ 179.100-7 Materials.**

(a) \* \* \*

Specifications	Minimum tensile strength (p.s.i.) welded condition <sup>1</sup>	Minimum elongation in 2 inches (percent) welded condition (longitudinal)
AAR TC 128, Gr. B .....	81,000	19
ASTM A 302 <sup>2</sup> , Gr.B .....	80,000	20
ASTM A 516 <sup>2</sup> .....	70,000	20
ASTM A 537 <sup>2</sup> , Class 1 .....	70,000	23

<sup>1</sup> Maximum stresses to be used in calculations.

<sup>2</sup> These specifications are incorporated by reference (IBR, see § 171.7 of this subchapter).

(b) *Aluminum alloy plate:* Aluminum alloy plate material used to fabricate tank shell and manway nozzle must be suitable for fusion welding and must comply with one of the following specifications (IBR, see § 171.7 of this subchapter) with its indicated minimum tensile strength and elongation in the welded condition. \* \* \*

(c) \* \* \*  
 (2) \* \* \*

(i) High alloy steels used to fabricate tank must be tested in accordance with the following procedures in ASTM A 262, "Standard Practices for Detecting

Susceptibility to Intergranular Attack in Austenitic Stainless Steel" (IBR, see § 171.7 of this subchapter), and must exhibit corrosion rates not exceeding the following: \* \* \*

■ 160. In § 179.100-9, paragraph (a) is revised to read as follows:

**§ 179.100-9 Welding.**

(a) All joints shall be fusion-welded in compliance with the requirements of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter). Welding procedures,

welders and fabricators shall be approved.

\* \* \* \* \*

■ 161. In § 179.100-10, paragraph (a) is revised to read as follows:

**§ 179.100-10 Postweld heat treatment.**

(a) After welding is complete, steel tanks and all attachments welded thereto must be postweld heat treated as a unit in compliance with the requirements of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 162. In § 179.100–12, paragraph (a) is revised to read as follows:

**§ 179.100–12 Manway nozzle, cover and protective housing.**

(a) Manway nozzles must be of approved design of forged or rolled steel for steel tanks or of fabricated aluminum alloy for aluminum tanks, with an access opening of at least 18 inches inside diameter, or at least 14 inches by 18 inches around or oval. Each nozzle must be welded to the tank and the opening reinforced in an approved manner in compliance with the requirements of AAR Specifications for Tank Cars, appendix E, Figure E10 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 163. In § 179.100–13, paragraph (e) is revised to read as follows:

**§ 179.100–13 Venting, loading and unloading valves, measuring and sampling devices.**

\* \* \* \* \*

(e) Bottom of tank shell may be equipped with a sump or siphon bowl, or both, welded or pressed into the shell. Such sumps or siphon bowls, if applied, are not limited in size and must be made of cast, forged or fabricated metal. Each sump or siphon bowl must be of good welding quality in conjunction with the metal of the tank shell. When the sump or siphon bowl is pressed in the bottom of the tank shell, the wall thickness of the pressed section must not be less than that specified for the shell. The section of a circular cross section tank to which a sump or siphon bowl is attached need not comply with the out-of-roundness requirement specified in AAR Specifications for Tank Cars, appendix W, W14.06 (IBR, see § 171.7 of this subchapter). Any portion of a sump or siphon bowl not forming a part of cylinder of revolution must have walls of such thickness and be so reinforced that the stresses in the walls caused by a given internal pressure are no greater than the circumferential stress that would exist under the same internal pressure in the wall of a tank of circular cross section designed in accordance with § 179.100–6(a), but in no case shall the wall thickness be less than that specified in § 179.101–1.

■ 164. In § 179.100–14, paragraph (a)(1) is revised to read as follows:

**§ 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 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

**§ 179.100–18 [Amended]**

■ 165. In § 179.100–18, amend paragraph (c) by removing the parenthetical phrase “(see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in its place.

■ 166. In § 179.101–1, footnote 6 following the table is revised to read as follows:

**§ 179.101–1 Individual specification requirements.**

\* \* \* \* \*

<sup>6</sup> See AAR Specifications for Tank Cars, appendix E, E4.01 (IBR, see § 171.7 of this subchapter), and § 179.103–2.

\* \* \* \* \*

■ 167. In § 179.102–1, paragraph (a)(1) is revised to read as follows:

**§ 179.102–1 Carbon dioxide, refrigerated liquid.**

(a) \* \* \*

(1) All plates for tank, manway nozzle and anchorage of tanks must be made of carbon steel conforming to ASTM A 516/A 516M (IBR, see § 171.7 of this subchapter), Grades 55, 60, 65, or 70, or AAR Specification TC 128–78, Grade B. The ASTM A 516/A 516M plate must also meet the Charpy V-Notch test requirements of ASTM A 20/A 20M (see table 16) (IBR, see § 171.7 of this subchapter) in the longitudinal direction of rolling. The TC 128 plate must also meet the Charpy V-Notch energy absorption requirements of 15 ft.-lb. minimum average for 3 specimens, and 10 ft.-lb. minimum for one specimen, at minus 50 °F in the longitudinal direction of rolling in accord with ASTM A 370 (IBR, see § 171.7 of this subchapter). Production-welded test plates prepared as required by W4.00 of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter), must include impact test specimens of weld metal and heat-affected zone. As an alternate, anchor legs may be fabricated of stainless steel, ASTM A 240/A 240M Types 304, 304L, 316 or 316L, for which impact tests are not required.

\* \* \* \* \*

■ 168. In § 179.102–2, paragraph (a)(1) is revised to read as follows:

**§ 179.102–2 Chlorine.**

(a) \* \* \*

(1) Tanks must be fabricated from carbon steel complying with ASTM Specification A 516 (IBR, see § 171.7 of this subchapter), Grade 70, or AAR

Specification TC 128, Grade A or B.

\* \* \*

■ 169. In § 179.102–4, paragraphs (a)(2) introductory text, (a)(2)(i), (a)(2)(ii), and (a)(2)(iii)(A) are revised to read as follows:

**§ 179.102–4 Vinyl fluoride, stabilized.**

(a) \* \* \*

(2) Steel complying with ASTM Specification A 516 (IBR, see § 171.7 of this subchapter); Grade 70; ASTM Specification A 537 (IBR, see § 171.7 of this subchapter), Class 1; or AAR Specification TC 128, Grade B, in which case impact tests must be performed as follows:

(i) ASTM A 516/A 516M and A 537/A 537M material must meet the Charpy V-Notch test requirements, in longitudinal direction of rolling, of ASTM A 20/A 20M (IBR, see § 171.7 of this subchapter).

(ii) AAR Specification TC 128 material must meet the Charpy V-Notch test requirements, in longitudinal direction of rolling, of 15 ft.-lb. minimum average for 3 specimens, with a 10 ft.-lb. minimum for any one specimen, at minus 50 °F or colder, in accordance with ASTM A 370 (IBR, see § 171.7 of this subchapter).

(iii) \* \* \*

(A) Be prepared in accordance with AAR Specifications for Tank Cars, appendix W, W4.00 (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

■ 170. In § 179.102–17, paragraphs (b)(2) introductory text, (b)(2)(i), (b)(2)(ii), and (b)(2)(iii)(A) are revised to read as follows:

**§ 179.102–17 Hydrogen chloride, refrigerated liquid.**

\* \* \* \* \*

(b) \* \* \*

(2) Steel conforming to ASTM A 516/A 516M (IBR, see § 171.7 of this subchapter), Grade 70; ASTM A 537/A 537M, (IBR, see § 171.7 of this subchapter) Class 1; or AAR Specification TC 128, Grade B in which case impact tests must be performed as follows:

(i) ASTM A 516/A 516M and A 537/A 537M material must meet the Charpy V-notch test requirements, in longitudinal direction of rolling, of ASTM A 20/A 20M (IBR, see § 171.7 of this subchapter).

(ii) AAR Specification TC 128 material must meet the Charpy V-notch test requirements, in longitudinal direction of rolling of 15 ft.-lb. minimum average for 3 specimens, with a 10 ft.-lb. minimum for any one

specimen, at minus 50 °F or colder, in accordance with ASTM A 370 (IBR, see § 171.7 of this subchapter).

(iii) \* \* \*

(A) Be prepared in accordance with AAR Specifications for Tank Cars, appendix W, W4.00 (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

■ 171. In § 179.103–5, the first two sentences in paragraph (b)(1) are revised to read as follows:

**§ 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 (IBR, see § 171.7 of this subchapter). All bottom outlet reducers and closures and their attachments shall be secured to the car by at least 3/8 inch chain, or its equivalent, except that bottom outlet closure plugs may be attached by 1/4 inch chain. \* \* \*

■ 172. In § 179.200–7, the table in paragraph (b), paragraph (c) introductory text, footnote 2 of paragraph (d) introductory text, the table in paragraph (e), paragraph (f) introductory text, and paragraph (h) are revised to read as follows:

\* \* \* \* \*

**§ 179.200–7 Materials.**

\* \* \* \* \*

(b) \* \* \*

Specifications	Minimum tensile strength (p.s.i.) welded condition <sup>1</sup>	Minimum elongation in 2 inches (percent) weld metal (longitudinal)
AAR TC 128, Gr. B .....	81,000	19
ASTM A 516 <sup>2</sup> .....	70,000	20

<sup>1</sup> Minimum stresses to be used in calculations.

<sup>2</sup> This specification is incorporated by reference (IBR, see § 171.7 of this subchapter).

(c) *Aluminum alloy plate*: Aluminum alloy plate must be suitable for welding and comply with one of the following specifications (IBR, see § 171.7 of this subchapter):

\* \* \* \* \*

<sup>2</sup> High alloy steel materials used to fabricate tank and expansion dome, when used, must be tested in accordance with Practice A of ASTM Specification A 262 titled, “Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels” (IBR; see § 171.7

of this subchapter). If the specimen does not pass Practice A, Practice B or C must be used and the corrosion rates may not exceed the following:

\* \* \* \* \*

(e) *Nickel plate*: \* \* \*

Specifications	Minimum tensile strength (psi) welded condition <sup>1</sup>	Minimum elongation in 2 inches (percent) weld metal (longitudinal)
ASTM B 162 <sup>2</sup> .....	40,000	20

\* \* \* \* \*

(f) *Manganese-molybdenum steel plate*: Manganese-molybdenum steel plate must be suitable for fusion welding and comply with the following specification (IBR, see § 171.7 of this subchapter): \* \* \*

\* \* \* \* \*

(h) All external projections that may be in contact with the lading and all castings, forgings, or fabrications used for fittings or attachments to tank and expansion dome, when used, in contact with lading must be made of material to an approved specification. See AAR Specifications for Tank Cars, appendix M, M4.05 (IBR, see § 171.7 of this subchapter) for approved material specifications for castings for fittings.

■ 173. In § 179.200–9, paragraph (a) is revised to read as follows:

**§ 179.200–9 Compartment tanks.**

(a) When a tank is divided into compartments, by inserting interior

heads, interior heads must be inserted in accordance with AAR Specifications for Tank Cars, appendix E, E7.00 (IBR, see § 171.7 of this subchapter), and must comply with the requirements specified in § 179.201–1. Voids between compartment heads must be provided with at least one tapped drain hole at their lowest point, and a tapped hole at the top of the tank. The top hole must be closed, and the bottom hole may be closed, with not less than three-fourths inch and not more than 1½-inch solid pipe plugs having NPT threads.

\* \* \* \* \*

■ 174. In § 179.200–10, paragraph (a) is revised to read as follows:

**§ 179.200–10 Welding.**

(a) All joints shall be fusion-welded in compliance with the requirements of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter). Welding procedures,

welders and fabricators shall be approved.

■ 175. Section 179.200–11 is revised to read as follows:

**§ 179.200–11 Postweld heat treatment.**

When specified in § 179.201–1, after welding is complete, postweld heat treatment must be in compliance with the requirements of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter).

■ 176. In § 179.200–13, paragraph (a) is revised to read as follows:

**§ 179.200–13 Manway ring or flange, pressure 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 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 177. In § 179.200–15, paragraph (c) is revised to read as follows:

**§ 179.200–15 Closures for manways.**

\* \* \* \* \*

(c) Manway covers must be of approved cast, forged, or fabricated metals. Malleable iron, if used, must comply with ASTM A 47 (IBR, see § 171.7 of this subchapter), Grade 35018. Cast iron manway covers must not be used.

\* \* \* \* \*

■ 178. In § 179.200–17, the first sentence of paragraph (a)(1) is revised to read as follows:

**§ 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 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

\* \* \* \* \*

■ 179. In § 179.200–22, paragraph (d) is revised to read as follows:

**§ 179.200–22 Test of tanks.**

\* \* \* \* \*

(d) Caulking of welded joints to stop leaks developed during the foregoing tests is prohibited. Repairs in welded joints shall be made as prescribed in AAR Specifications for Tank Cars,

appendix W (IBR, see § 171.7 of this subchapter).

■ 180. Section 179.201–4 is revised to read as follows:

**§ 179.201–4 Material.**

All fittings, tubes, and castings and all projections and their closures, except for protective housing, must also meet the requirements specified in ASTM A 262 (IBR, see § 171.7 of this subchapter), except that when preparing the specimen for testing the carburized surface may be finished by grinding or machining.

■ 181. Section 179.201–5 is revised to read as follows:

**§ 179.201–5 Postweld heat treatment and corrosion resistance.**

(a) Tanks and attachments welded directly thereto must be postweld heat treated as a unit at the proper temperature except as indicated below. Tanks and attachments welded directly thereto fabricated from ASTM A 240/A 240M (IBR, see § 171.7 of this subchapter) Type 430A, Type 304 and Type 316 materials must be postweld heat treated as a unit and must be tested to demonstrate that they possess the corrosion resistance specified in § 179.200–7(d), Footnote 2. Tanks and attachments welded directly thereto, fabricated from ASTM A 240/A 240M Type 304L or Type 316L materials are not required to be postweld heat treated.

(b) Tanks and attachments welded directly thereto, fabricated from ASTM A 240/A 240M Type 304L and Type 316 materials must be tested to demonstrate

that they possess the corrosion resistance specified in § 179.200–7(d), Footnote 2.

■ 182. In § 179.201–6, paragraph (c) is revised to read as follows:

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

\* \* \* \* \*

(c) The manway ring and cover for specifications DOT–103CW, 103DW, 103EW, 111360W7, or 11A100W6 must be made of the metal and have the same inspection procedures specified in AAR Specifications for Tank Cars, appendix M, M3.03 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 183. In § 179.220–6, in paragraph (a), the definition of “S” following the formula is revised to read as follows:

**§ 179.220–6 Thickness of plates.**

(a) \* \* \*

Where: \* \* \*

S = Minimum tensile strength of plate material in psi as prescribed in AAR Specifications for Tank Cars, appendix M, Table M1 (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

■ 184. In § 179.220–7, the table in paragraph (b), paragraph (c) introductory text, paragraph (d) introductory text, and paragraph (e) introductory text are revised to read as follows:

**§ 179.220–7 Materials.**

\* \* \* \* \*

(b) \* \* \*

Specifications	Minimum tensile strength (p.s.i.) welded condition <sup>1</sup>	Minimum elongation in 2 inches (percent) weld metal (longitudinal)
AAR TC 128, Gr. B .....	81,000	19
ASTM A 516 <sup>2</sup> , Gr. 70 .....	70,000	20

<sup>1</sup> Maximum stresses to be used in calculations.

<sup>2</sup> This specification is incorporated by reference (IBR, see § 171.7 of this subchapter).

(c) *Aluminum alloy plate:* Aluminum alloy plate must be suitable for welding and comply with one of the following specifications (IBR, see § 171.7 of this subchapter): \* \* \*

\* \* \* \* \*

(d) *High alloy steel plate:* High alloy steel plate must comply with one of the following specifications (IBR, see § 171.7 of this subchapter): \* \* \*

(e) *Manganese-molybdenum steel plate:* Manganese-molybdenum steel plate must be suitable for fusion welding and must comply with the

following specification (IBR, see § 171.7 of this subchapter): \* \* \*

\* \* \* \* \*

■ 185. In § 179.220–10, paragraph (a) is revised to read as follows:

**§ 179.220–10 Welding.**

(a) All joints must be fusion welded in compliance with AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter). Welding procedures, welders, and fabricators shall be approved.

\* \* \* \* \*

■ 186. In § 179.220–11, paragraph (b) is revised to read as follows:

**§ 179.220–11 Postweld heat treatment.**

\* \* \* \* \*

(b) Postweld heat treatment of the cylindrical portions of the outer shell to which the anchorage or draft sills are attached must comply with AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 187. Section 179.220–14 is revised to read as follows:

**§ 179.220–14 Openings in the tanks.**

Openings in the inner container and the outer shell must be reinforced in compliance with AAR Specifications for Tank Cars, appendix E (IBR, see § 171.7 of this subchapter). In determining the required reinforcement area for openings in the outer shell, *t* shall be one-fourth inch.

■ 188. In § 179.220–18, the first sentence in paragraph (a)(1) is revised to read as follows:

**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 (IBR, see § 171.7 of this subchapter).

■ 189. In § 179.220–26, paragraph (a) is revised to read as follows:

**§ 179.220–26 Stenciling.**

(a) The outer shell, or the jacket if the outer shell is insulated, must be stenciled in compliance with AAR Specifications for Tank Cars, appendix C (IBR, see § 171.7 of this subchapter).

■ 190. In § 179.300–7, the table in paragraph (a) is revised to read as follows:

**§ 179.300–7 Materials.**

(a) \* \* \*

Specifications <sup>2</sup>	Tensile strength (psi) welded condition <sup>1</sup> (minimum)	Elongation in 2 inches (percent) welded condition <sup>1</sup> (longitudinal) (minimum)
ASTM A 240/A 240M type 304 .....	75,000	25
ASTM A 240/A 240M type 304L .....	70,000	25
ASTM A 240/A 240M type 316 .....	75,000	25
ASTM A 240/A 240M type 316L .....	70,000	25
ASTM A 240/A 240M type 321 .....	75,000	25
ASTM A 285 Gr. A .....	45,000	29
ASTM A 285 Gr. B .....	50,000	20
ASTM A 285 Gr. C .....	55,000	20
ASTM A 515/A 515M Gr. 65 .....	65,000	20
ASTM A 515/A 515M Gr. 70 .....	70,000	20
ASTM A 516/A 516M Gr. 70 .....	70,000	20

<sup>1</sup> Maximum stresses to be used in calculations.

<sup>2</sup> These specifications are incorporated by reference (IBR, see § 171.7 of this subchapter.)

\* \* \* \* \*

■ 191. In § 179.300–9, paragraph (a) is revised to read as follows:

**§ 179.300–9 Welding.**

(a) Longitudinal joints must be fusion welded. Head-to-shell joints must be forge welded on class DOT–106A tanks and fusion welded on class DOT–110A tanks. Welding procedures, welders and fabricators must be approved in accordance with AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 192. Section 179.300–10 is revised to read as follows:

**§ 179.300–10 Postweld heat treatment.**

After welding is complete, steel tanks and all attachments welded thereto, must be postweld heat treated as a unit in compliance with the requirements of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter).

■ 193. In § 179.300–15, paragraph (a) is revised to read as follows:

**§ 179.300–15 Pressure relief devices.**

(a) Unless prohibited in part 173 of this subchapter, tanks shall be equipped with one or more relief devices of approved type, made of metal not

subject to rapid deterioration by the lading and screwed directly into tank heads or attached to tank heads by other approved methods. The total discharge capacity shall be sufficient to prevent building up pressure in tank in excess of 82.5 percent of the tank test pressure. When relief devices of the fusible plug type are used, the required discharge capacity shall be available in each head. See AAR Specifications for Tank Cars, appendix A (IBR, see § 171.7 of this subchapter), for the formula for calculating discharge capacity.

\* \* \* \* \*

■ 194. In § 179.300–17, paragraph (b) is revised to read as follows:

**§ 179.300–17 Tests of pressure relief devices.**

\* \* \* \* \*

(b) Rupture disks of non-reclosing pressure relief devices must be tested and qualified as prescribed in appendix A, Paragraph 5, of the AAR Manual of Standards and Recommended Practices, Section C—Part III, AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 195. In § 179.400–3, paragraph (a)(1) is revised to read as follows:

**§ 179.400–3 Type.**

(a) \* \* \*

(1) Consist of an inner tank of circular cross section supported essentially concentric within an outer jacket of circular cross section, with the out of roundness of both the inner tank and outer jacket limited in accordance with Paragraph UG–80 in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter);

\* \* \* \* \*

■ 196. In § 179.400–5, paragraph (a) introductory text is revised to read as follows:

**§ 179.400–5 Materials.**

(a) Stainless steel of ASTM A 240/A 240M (IBR, see § 171.7 of this subchapter), Type 304 or 304L must be used for the inner tank and its appurtenances, as specified in AAR Specifications for Tank Cars, appendix M (IBR, see § 171.7 of this subchapter), and must be—

\* \* \* \* \*

■ 197. In § 179.400–6, paragraph (b) is revised to read as follows:

**§ 179.400–6 Bursting and buckling pressure.**

\* \* \* \* \*

(b) The outer jacket of the required evacuated insulation system must be

designed in accordance with § 179.400–8(d) and in addition must comply with the design loads specified in Section 6.2 of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter). The designs and calculations must provide for the loadings transferred to the outer jacket through the support system.

■ 198. In § 179.400–8, in paragraph (a), the definition of “S” following the formula is revised to read as follows:

**§ 179.400–8 Thickness of plates.**

(a) \* \* \*  
Where: \* \* \*

S = minimum tensile strength of the plate material, as prescribed in AAR Specifications for Tank Cars, appendix M, Table M1 (IBR, see § 171.7 of this subchapter), in psi;

■ 199. In § 179.400–11, paragraph (c) is revised to read as follows:

**§ 179.400–11 Welding.**

(c) Each joint must be welded in accordance with the requirements of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter).

■ 200. In § 179.400–12, paragraph (b) introductory text is revised to read as follows:

**§ 179.400–12 Postweld heat treatment.**

(b) The cylindrical portion of the outer jacket, with the exception of the circumferential closing seams, must be postweld heat treated as prescribed in AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter). Any item to be welded to this portion of the outer jacket must be attached before postweld heat treatment. Welds securing the following need not be postweld heat treated when it is not practical due to final assembly procedures:

■ 201. Section 179.400–15 is revised to read as follows:

**§ 179.400–15 Radioscopy.**

Each longitudinal and circumferential joint of the inner tank, and each longitudinal and circumferential double welded butt joint of the outer jacket, must be examined along its entire length in accordance with the requirements of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter).

■ 202. In § 179.400–18, paragraph (b) is revised to read as follows:

**§ 179.400–18 Test of inner tank.**

(b) Caulking of welded joints to stop leaks developed during the test is prohibited. Repairs to welded joints must be made as prescribed in AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter).

■ 203. In § 179.400–20, paragraph (c)(1) is revised to read as follows:

**§ 179.400–20 Pressure relief devices.**

(1) *Safety vent.* The safety vent shall function at the pressure specified in § 179.401–1. The safety vent must be flow rated in accordance with the applicable provisions of AAR Specifications for Tank Cars, appendix A (IBR, see § 171.7 of this subchapter), and provide sufficient capacity to meet the requirements of AAR Specifications for Tank Cars, appendix A, A8.07(a).

■ 204. In § 179.400–25, the introductory text is revised to read as follows:

**§ 179.400–25 Stenciling.**

Each tank car must be stenciled in compliance with the provisions of the AAR Specifications for Tank Cars, appendix C (IBR, see § 171.7 of this subchapter). The stenciling must also include the following:

**PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS**

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

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

**PART 180—[AMENDED]**

■ 205. In Part 180, amend the following sections by removing the parenthetical phrase “(incorporated by reference; see § 171.7 of this subchapter)” and adding the parenthetical phrase “(IBR, see § 171.7 of this subchapter)” in each of the following places:

- 180.205(f)(1)
- 180.209(b)(1)(iii)
- 180.209(d)
- 180.209(e)
- 180.209(g)
- 180.209(i)(1) introductory text
- 180.211(c)(1)(iv)
- 180.211(d)(1)(ii)

■ 206. In Part 180, amend the following sections by removing the parenthetical phrase “(incorporated by reference; see § 171.7 of this subchapter)” in each of the following places:

- 180.209(f)
- 180.209(i)(2)

■ 207. In § 180.209, paragraph (k) is revised to read as follows:

**§ 180.209 Requirements for requalification of specification cylinders.**

(k) *3HT cylinders.* In addition to the other requirements of this section, a cylinder marked DOT–3HT must be requalified in accordance with CGA C–8 (IBR, see § 171.7 of this subchapter).

■ 208. In § 180.407, paragraph (g)(3) is revised to read as follows:

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

(g) \* \* \*

(3) Each MC 330 and MC 331 cargo tank constructed of quenched and tempered steel in accordance with Part UHT in Section VIII of the ASME Code (IBR, see § 171.7 of this subchapter), or constructed of other than quenched and tempered steel but without postweld heat treatment, used for the transportation of anhydrous ammonia or any other hazardous materials that may cause corrosion stress cracking, must be internally inspected by the wet fluorescent magnetic particle method immediately prior to and in conjunction with the performance of the pressure test prescribed in this section. Each MC 330 and MC 331 cargo tank constructed of quenched and tempered steel in accordance with Part UHT in Section VIII of the ASME Code and used for the transportation of liquefied petroleum gas must be internally inspected by the wet fluorescent magnetic particle method immediately prior to and in conjunction with the performance of the pressure test prescribed in this section.

The wet fluorescent magnetic particle inspection must be in accordance with Section V of the ASME Code and CGA Technical Bulletin TB–2 (IBR, see § 171.7 of this subchapter). This paragraph does not apply to cargo tanks that do not have manholes. (See § 180.417(c) for reporting requirements.)

■ 209. In § 180.411, paragraph (b) introductory text is revised to read as follows:

**§ 180.411 Acceptable results of tests and inspections.**

(b) *Dents, cuts, digs and gouges.* For evaluation procedures, see CGA C–6 (IBR, see § 171.7 of this subchapter).

■ 210. In § 180.413, paragraph (b)(6) is revised to read as follows:

**§ 180.413 Repair, modification, stretching, rebarrelling, or mounting of specification cargo tanks.**

\* \* \* \* \*

(b) \* \* \*

(6) MC 330 and MC 331 cargo tanks must be repaired in accordance with the repair procedures described in CGA Technical Bulletin TB-2 (IBR, see § 171.7 of this subchapter) and the National Board Inspection Code (IBR, see § 171.7 of this subchapter). Each cargo tank having cracks or other defects requiring welded repairs must meet all inspection, test, and heat treatment requirements in § 178.337-16 of this subchapter in effect at the time of the repair, except that postweld heat treatment after minor weld repairs is not required. When a repair is made of defects revealed by the wet fluorescent magnetic particle inspection, including those repaired by grinding, the affected area of the cargo tank must again be examined by the wet fluorescent magnetic particle method after hydrostatic testing to assure that all defects have been removed.

\* \* \* \* \*

■ 211. In § 180.509, in paragraph (g)(1)(ii), Note 2 following the table is revised to read as follows:

**§ 180.509 Requirements for inspection and test of specification tank cars.**

\* \* \* \* \*

(g) \* \* \*

(1) \* \* \*

(ii) \* \* \*

Notes: \* \* \*

2. Any reduction in the tank car shell may not affect the structural strength of the tank car so that the tank car shell no longer

conforms to Section 6.2 of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 212. In § 180.513, paragraph (a) is revised to read as follows:

**§ 180.513 Repairs, alterations, conversions, and modifications.**

(a) In order to repair tank cars, the tank car facility must comply with the requirements of appendix R of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

■ 213. In § 180.515, paragraph (a) is revised to read as follows:

**§ 180.515 Markings.**

(a) When a tank car passes the required inspection and test with acceptable results, the tank car facility shall mark the date of the inspection and test and the due date of the next inspection and test on the tank car in accordance with appendix C of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter). When a tank car facility performs multiple inspection and test at the same time, one date may be used to satisfy the requirements of this section. One date also may be shown when multiple inspection and test have the same due date.

\* \* \* \* \*

■ 214. In § 180.517, paragraph (a) is revised to read as follows:

**§ 180.517 Reporting and record retention requirements.**

(a) *Certification and representation.* Each owner of a specification tank car shall retain the certificate of construction (AAR Form 4-2) and related papers certifying that the

manufacture of the specification tank car identified in the documents is in accordance with the applicable specification. The owner shall retain the documents throughout the period of ownership of the specification tank car and for one year thereafter. Upon a change of ownership, the requirements in Section 1.3.15 of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter) apply.

\* \* \* \* \*

■ 215. In § 180.519, paragraph (c) is revised to read as follows:

**§ 180.519 Periodic retest and inspection of tank cars other than single-unit tank cars tanks.**

\* \* \* \* \*

(c) *Visual inspection.* Tanks of Class DOT 106A and DOT 110A-W specifications (§§ 179.300 and 179.301 of this subchapter) used exclusively for transporting fluorinated hydrocarbons and mixtures thereof, and that are free from corroding components, may be given a periodic complete internal and external visual inspection in place of the periodic hydrostatic retest. Visual inspections shall be made only by competent persons. The tank must be accepted or rejected in accordance with the criteria in CGA C-6 (IBR, see § 171.7 of this subchapter).

\* \* \* \* \*

Issued in Washington, DC, on September 24, 2003, under the authority delegated in 49 CFR Part 1.

**Samuel G. Bonasso,**

*Acting Administrator, Research and Special Programs Administration.*

[FR Doc. 03-30613 Filed 12-30-03; 8:45 am]

**BILLING CODE 4910-60-P**