

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.