

tank shall be grouped in one location, either at the top of the tank or at one end of the tank.

(d) The following openings may be installed at locations other than on the top or end of the tank:

(1) The openings for liquid level gauging devices, pressure gauges, or for safety devices, may be installed separately at the other location or in the side of the shell;

(2) One plugged opening of 2-inch National Pipe Thread or less provided for maintenance purposes may be located elsewhere;

(3) An opening of 3-inch National Pipe Size or less may be provided at another location, when necessary, to facilitate installation of condensing coils; or

(4) Filling and discharge connections may be installed below the normal liquid level of the tank if the tank design conforms to the following requirements:

(i) The tank must be permanently mounted in a full framework for containerized transport. For each tank design, a prototype tank, must fulfill the requirements of parts 450 through 453 of this title for compliance with the requirements of Annex II of the International Convention for Safe Containers.

(ii) Each filling and discharge connection must be equipped with an internal self-closing stop-valve capable of closing within 30 seconds of actuation. Each internal self-closing stop-valve must be protected by a shear section or sacrificial device located outboard of the valve. The shear section or sacrificial device must break at no more than 70 percent of the load that would cause failure of the internal self-closing stop-valve.

(iii) Each internal self-closing stop-valve must be provided with remote means of automatic closure, both thermal and mechanical. The thermal means of automatic closure must actuate at a temperature of not over 250 °F.

(e) Each uninsulated tank used for the transportation of compressed gas, as defined in §173.300 of this subchapter, must have an exterior surface finish that is significantly reflective, such as a light reflecting color if paint-

ed, or a bright reflective metal or other material if unpainted.

[Amdt. 178-117, 61 FR 50627, Sept. 26, 1996]

#### § 178.245-2 Material.

(a) All material used for the construction of the tank and appurtenances shall be suitable for use with the commodity to be transported therein.

(b) A material of thickness less than  $\frac{3}{16}$  inch shall not be used for the shells and heads.

#### § 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 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 the "Code" (see §178.245-1(a)) shall be increased by 20 percent or 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 "Code" (see §178.245-1(a)).

(b) [Reserved]

[29 FR 18972, Dec. 29, 1964; Redesignated at 32 FR 5606, Apr. 5, 1967, as amended by 66 FR 45387, Aug. 28, 2001]

#### § 178.245-4 Tank mountings.

(a) Tanks shall be designed and fabricated with mountings to provide a secure base in transit. "Skids" or similar devices shall be deemed to comply with this requirement.

(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 of the Code 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.