

### § 178.270-7

title, in addition to the requirements of this subchapter.

[Amdt. 178-65, 46 FR 9896, Jan. 29, 1981]

### § 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 the ASME Code. 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 ASME Code, Section VIII, Pressure Vessels, and must be made available to any duly identified representative of the Department and the owner of the tank.

[Amdt. 178-65, 46 FR 9896, Jan. 29, 1981; 46 FR 24184, Apr. 30, 1981]

### § 178.270-8 Protection of valves and accessories.

Each valve, fitting, accessory, safety device, gauging device, and other appurtenance shall be adequately protected against mechanical damage.

[Amdt. 178-65, 46 FR 9896, Jan. 29, 1981]

### § 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 1894 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 the ASME Code.

[Amdt. 178-65, 46 FR 9896, Jan. 29, 1981, as amended by Amdt. 178-104, 59 FR 49135, Sept. 26, 1994; 66 FR 45387, Aug. 28, 2001]

### § 178.270-10 External design pressure.

(a) Each portable tank not fitted with vacuum relief devices must be designed to withstand a positive external

### 49 CFR Ch. I (10-1-02 Edition)

pressure differential of at least 0.4 bar (6 psig).

(b) Each portable tank fitted with vacuum relief devices must be designed to withstand a positive external pressure differential not less than the set pressure of the vacuum relief device and in any case at least 0.21 bar (3 psig).

[Amdt. 178-65, 46 FR 9896, Jan. 29, 1981, as amended at 66 FR 45387, Aug. 28, 2001]

### § 178.270-11 Pressure and vacuum relief devices.

(a) *Relief devices required.* Each portable tank, or each independent compartment of a portable tank, must be fitted with pressure relief devices in accordance with the following:

(1) Each portable tank, or each independent compartment of a portable tank, with a capacity of more than 1893 L (500 gallons), must be provided with a primary spring-loaded pressure relief device, and, in addition, may have one or more emergency pressure relief devices that may be a spring-loaded pressure relief valve, a rupture disc or fusible element in parallel with the primary pressure relief device.

(2) Each portable tank, or each independent compartment of a portable tank, with a capacity of 1893 L (500 gallons) or less, must be fitted with a primary pressure relief device that may either be a non-reclosing device or a spring-loaded pressure relief valve.

(3) If a non-reclosing device is inserted in series with a required pressure relief valve, the space between them must have a suitable tell-tale indicator to permit detection, prior to and during shipment, of disc rupture, pinholing, or leakage which could cause a malfunction of the pressure relief system. The frangible disc must rupture at a tank pressure within the range specified in paragraph (c)(1) of this section.

(b) *Location and construction of relief devices.* (1) Pressure relief devices must be spring-loaded valves, rupture discs, or fusible elements. Vacuum relief devices must be capable of reclosing in any attitude. Each pressure relief device inlet must be situated in the vapor space of the tank. The discharge from any device must be unrestricted and directed to prevent impingement upon