

be pressure tested externally to at least the cargo tank test pressure, and internally to either the tank test pressure or twice the working pressure of the heating/refrigeration system, whichever is higher. A cargo tank may not be placed in service if any leakage occurs or other evidence of damage is found. The refrigerant or heating medium to be circulated through the coils must not be capable of causing any adverse chemical reaction with the cargo tank lading in the event of leakage. The unit furnishing refrigeration may be mounted on the motor vehicle.

(2) Where any liquid susceptible to freezing, or the vapor of any such liquid, is used for heating or refrigeration, the heating or refrigeration system shall be arranged to permit complete drainage.

[Order 59-B, 30 FR 580, Jan. 16, 1965. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §178.337-9, see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

178.337-10 Protection of fittings.

(a) All valves, fittings, safety relief devices, and other accessories to the tank proper shall be protected in accordance with paragraph (b) of this section against such damage as could be caused by collision with other vehicles or objects, jackknifing and overturning. In addition, safety relief valves shall be so protected that in the event of overturn of the vehicle on to a hard surface, their opening will not be prevented and their discharge will not be restricted.

(b) The protective devices or housing must be designed to withstand static loading 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, without damage to the fittings protected, and must be made of metal at least $\frac{3}{16}$ -inch thick.

(c) *For chlorine tanks.* There shall be a protective housing and manway cover to permit the use of standard emergency kits for controlling leaks in fittings on the dome cover plate. The

housing and manway cover must conform to the Chlorine Institute's standards as follows:

(1) Tanks manufactured on or before December 31, 1974: Dwg. 137-1, dated November 7, 1962, or Dwg. 137-2, dated September 1, 1971.

(2) Tanks manufactured on or after January 1, 1975: Dwg. 137-2, dated September 1, 1971.

(d) Each cargo tank shall be provided with at least one rear bumper designed to protect the tank and piping in the event of a rear end collision and minimize the possibility of any part of the colliding vehicle striking the tank. The design shall be such as to transmit the force of a rear end collision in a horizontal line to the chassis of the vehicle. The bumper shall be designed to withstand the impact of the fully loaded vehicle with a deceleration of 2 "g", using a safety factor of four based on the ultimate strength of the bumper material. The bumpers shall conform dimensionally to §393.86, chapter III of this title.

[Order 59-B, 30 FR 581, Jan. 16, 1965. Redesignated at 32 FR 5606, Apr. 5, 1967]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §178.337-10, see the List of CFR Sections Affected which appears in the Finding Aids section of the printed volume and on GPO Access.

§ 178.337-11 Emergency discharge control.

(a) *Emergency discharge control equipment.* Emergency discharge control equipment must be installed in a liquid discharge line as specified by product and service in §173.315(n) of this subchapter. The performance and certification requirements for emergency discharge control equipment are specified in §173.315(n) of this subchapter and are not a part of the cargo tank motor vehicle certification made under this specification.

(b) *Engine fuel lines.* On a truck-mounted cargo tank, emergency discharge control equipment is not required on an engine fuel line of not more than $\frac{3}{4}$ NPT equipped with a valve having an integral excess flow valve or excess flow feature.

[64 FR 28050, May 24, 1999]