

relieved no appendages shall be welded to the tanks after they have been stress-relieved unless authorized by the Commandant.

(c) Tanks may be located in dry cargo holds or in liquid cargo tanks or may be installed "on deck" or "under deck" with the tank protruding above deck. On installations where a portion of the tank extends above the weather deck, provision shall be made to maintain the weathertightness of the deck, except that vessels operating on protected inland waters may have tanks located in the holds of hopper type barges without the watertightness of the deck being maintained. All tanks shall be installed with the manhole opening and fittings located above the weather deck.

(d) The anhydrous ammonia tanks may be installed in the bulk liquid cargo tanks provided the liquid surrounding the enclosed anhydrous ammonia tanks complies with the following chemical and physical properties:

(1) Boiling point above 125 °F. at atmospheric pressure.

(2) Inert to ammonia at 100 °F. at atmospheric pressure.

(3) Noncorrosive in the liquid and vapor phase to the ammonia tanks and piping.

[CGFR 65-50, 30 FR 17022, Dec. 30, 1965, as amended by CGFR 70-10, 35 FR 3711, Feb. 25, 1970]

§ 98.25-30 Lagging.

(a) Lagged tanks shall be covered with an incombustible insulation material of a thickness to provide a thermal conductance of not more than 0.075 B.t.u. per square foot per degree F. differential in temperature per hour. The insulating material shall be of an approved type complying with the requirements of subpart 164.009 of subchapter Q (Specifications) of this chapter, and shall be given a vapor proof coating with fire retardant material acceptable to the Commandant. Tanks exposed to the weather shall have the insulation and vapor proof coating covered with a removable sheet metal jacket of not less than 0.083 inch thickness and flashed around all openings so as to be weather tight. Materials other than sheet metal may be used to cover

the insulation and vapor proof coating when specifically authorized by the Commandant.

(b) Where unlagged tanks are installed in insulated holds or insulated 'tween deck spaces, such tanks shall be considered lagged provided the thermal conductance of the insulation is not less than that required by paragraph (a) of this section.

§ 98.25-35 Refrigerated systems.

(a) Where refrigerated systems are installed to maintain the temperature of the liquid below atmospheric, at least two complete refrigeration plants automatically regulated by pressure variations within the tanks shall be provided, each to be complete with the necessary auxiliaries for proper operation. The capacity of each refrigeration compressor shall be sufficient to maintain the vapor pressure in the tanks during the peak atmospheric temperature conditions below the pressure for which the tanks are designed.

(b) An alternate arrangement may consist of three compressors, any two of which shall be capable of maintaining the vapor pressure in the tanks during peak atmospheric temperature conditions below the pressure for which the tanks are designed, the third compressor acting as a stand-by unit.

(c) Refrigerated tanks shall be insulated in conformance with the requirements of § 98.25-30.

§ 98.25-40 Valves, fittings, and accessories.

(a) All valves, flanges, fittings and accessory equipment shall be of a type suitable for use with anhydrous ammonia and shall be made of steel, or malleable or nodular iron meeting the requirements of § 56.60-1 of subchapter F (Marine Engineering) of this chapter. Valves shall be fitted with noncorrosive material suitable for ammonia service. Valves, flanges, and pipe fittings shall be of the square or round tongue and groove type or raised-face, United States of America Standard 300-pound standard minimum, fitted with suitable soft gasket material. Welded fittings shall be used wherever possible and the number of pipe joints shall be held to a minimum. Screwed joints are