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Subpart D—Special Design and Operating Requirements

§ 154.1700 Purpose.

This subpart prescribes design and operating requirements that are unique for certain cargoes regulated by this part.

§ 154.1702 Materials of construction.

When Table 4 references one of the following paragraphs in this section, the materials in the referenced paragraph must not be in components that contact the cargo liquid or vapor:

(a) Aluminum and aluminum bearing alloys.

(b) Copper and copper bearing alloys.

(c) Zinc or galvanized steel.

(d) Magnesium.

(e) Mercury.

(f) Acetylide forming materials, such as copper, silver, and mercury.

§ 154.1705 Independent tank type C.

The following cargoes must be carried in an independent tank type C that meets § 154.701(a):

(a) Ethylene oxide.

(b) Methyl bromide.

(c) Sulfur dioxide.

§ 154.1710 Exclusion of air from cargo tank vapor spaces.

When a vessel is carrying acetaldehyde, butadiene, ethylene oxide, or vinyl chloride, the master shall ensure that air is:

(a) Purged from the cargo tanks and associated piping before the cargo is loaded; and

(b) Excluded after the cargo is loaded by maintaining a positive pressure of at least 13.8 kPa gauge (2 psig) by:

(1) Introducing a gas that:

(i) Is not reactive;

(ii) Is not flammable; and

(iii) Does not contain more than 0.2% oxygen by volume; or

(2) Controlling the cargo temperature.

§ 154.1715 Moisture control.

When a vessel is carrying sulfur dioxide, the master shall ensure that:

(a) A cargo tank is dry before it is loaded with sulfur dioxide; and

(b) Air or inert gas admitted into a cargo tank carrying sulfur dioxide during discharging or tank breathing has a moisture content equal to or less than the moisture content of air with a dewpoint of −45° C (−49°F) at atmospheric pressure.

§ 154.1720 Indirect refrigeration.

A refrigeration system that is used to cool acetaldehyde, ethylene oxide, or methyl bromide, must be an indirect refrigeration system that does not use vapor compression.

§ 154.1725 Ethylene oxide.

(a) A vessel carrying ethylene oxide must:

(1) Have cargo piping, vent piping, and refrigeration equipment that have no connections to other systems;

(2) Have valves, flanges, fittings, and accessory equipment made of steel, stainless steel, except types 416 and 442, or other material specially approved by the Commandant (G–MSO);

(3) Have valve disk faces, and other wearing parts of valves made of stainless steel containing not less than 11% chromium;

(4) Have gaskets constructed of spirally wound stainless steel with teflon or other material specially approved by the Commandant (G–MSO);

(5) Not have asbestos, rubber, or cast iron components in the cargo containment system and piping;

(6) Not have threaded joints in cargo piping;

(7) Have a water spray system under § 154.1105 that protects the above deck cargo piping; and

(8) Have a nitrogen inerting system or on board nitrogen gas storage that can inert the vapor space of an ethylene oxide cargo tank for a period of 30 days under the condition of paragraph (e) of this section.

(b) Cargo hose used for ethylene oxide must:

(1) Be specially approved by the Commandant (G–MSO); and

(2) Be marked ''For (Alkylene or Ethylene) Oxide Transfer Only.''

(c) Ethylene oxide must be maintained at less than 30°C (86°F).

(d) Cargo tank relief valves for tanks containing ethylene oxide must be set at 539 kPa gauge (78.2 psig) or higher.