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Phosphoric Acid—30 pounds per square inch gauge.
Sulfuric Acid—50 pounds per square inch gauge.

(2) Pressure vessel type cargo tanks shall be of welded construction meeting the requirements for Class II or Class III given in Part 54 of this chapter.

(3) When compressed air is used to discharge the cargo, the tank shall be fitted with a vent led to the atmosphere in which a rupture disk shall be installed. The rupture disk shall be designed to burst at a pressure not exceeding the design pressure of the tank. An auxiliary vent to relieve the pressure or vacuum in the tank during the cargo transfer operation may be led from the vent line between the tank and the rupture disk. A shutoff valve may be fitted in the auxiliary vent.

(c) Openings in tanks are prohibited below deck, except for access openings used for inspection and maintenance of tanks, or unless otherwise specifically approved by the Commandant. Openings shall be fitted with bolted cover plates and acid-resistant gaskets.

(d) Where special arrangements are approved by the Commandant to permit a pump suction to be led from the bottom of the tank, the filling and discharge lines shall be fitted with shutoff valves located above the weatherdeck or operable therefrom.

(e) The outage shall not be less than 1 percent.

(f) All enclosed compartments containing cargo tanks and all machinery spaces containing cargo pumps shall be fitted with effective means of ventilation.

(g) A separator shall be fitted in compressed air lines to the tank when air pressure is used to discharge the cargo.

(h) Only installed electric or portable battery lights shall be used during the cargo transfer operations. Smoking is prohibited and the person in charge of cargo transfer shall post No Smoking signs during cargo transfer operations.

(i) Tanks approved for the transportation of acid cargoes subject to this section shall not be used for the transportation of any other commodity, except upon authorization by the Commandant (G–MSO).

(j) Each cargo tank shall be subjected to an internal examination at least once in every 4 years. If cargo tank lining is required and the lining of the cargo tank has deteriorated in service or is not in place, the Marine Inspector may require the tank to be tested by such nondestructive means as he may consider necessary to determine its condition.

(k) The special requirements for fluorosilicic acid in §151.50–77, for hydrochloric acid in §151.50–22, for *hydrofluorosilicic acid, see* fluorosilicic acid, for phosphoric acid in §151.50–23, and for sulfuric acid in §151.50–21 also apply to the carriage of those acids.

[CGFR 70–10, 35 FR 3714, Feb. 25, 1970, as amended by GGD 80–001, 46 FR 63279, Dec. 31, 1981; CGD 82–063b, 48 FR 4781, Feb. 3, 1983; CGD 88–100, 54 FR 40040, Sept. 29, 1989; CGD 92–100, 59 FR 17028, Apr. 11, 1994]

§151.50–21 Sulfuric acid.

(a) *How sulfuric acid may be carried.* (1) Sulfuric acid of concentration of 77.5 percent (1.7019 specific gravity) (59.8° Baumé) or greater concentrations with or without an inhibitor, provided the corrosive effect on steel measured at 100°F. is not greater than that of 66° Baumé commercial sulfuric acid, may be transported in unlined gravity type cargo tanks or unlined pressure vessel type cargo tanks.

(2) Sulfuric acid of concentration of 65.25 percent (1.559 specific gravity) (52° Baumé) or greater concentrations, provided the corrosive effect on steel measured at 100°F. is not greater than that of 52° Baumé commercial sulfuric acid, may be transported in unlined pressure vessel type cargo tanks independent of the vessel's structure.

(3) Sulfuric acid of concentration not to exceed 65.25 percent (1.559 specific gravity) (52° Baumé) may be transported in gravity type cargo tanks or pressure-vessel type cargo tanks which are lined with lead or other equally suitable acid-resistant material acceptable to the Commandant.

(4) Sulfuric acid of concentration not to exceed 51 percent (1.408 specific gravity) (42° Baumé) and spent sulfuric acid resulting from the use of sulfuric acid in industrial processes may be transported in gravity type cargo tanks which are lined with rubber or

other equally suitable acid-resistant material acceptable to the Commandant. See §151.15–3(f)(2).

(5) Spent or sludge sulfuric acid resulting from the use of sulfuric acid in industrial processes may be transported in unlined gravity type cargo tanks or unlined pressure vessel type cargo tanks, provided the corrosive effect on steel is not greater than that of commercial sulfuric acid as prescribed in paragraph (a)(1) of this section.

(b) Heating coils will be the only acceptable means of liquefying frozen or congealed sulfuric acid.

(c) During cargo transfer, a water hose shall be connected to a water supply ready for immediate use and any leakage or spillage of acid shall be immediately washed down. This requirement can be met by facilities provided from shore.

(d) The requirements of §151.50–20 are also applicable to the shipment of sulfuric acid.

§151.50–22 Hydrochloric acid.

(a) Hydrochloric acid shall be carried in gravity or pressure type cargo tanks which are independent of the vessel's structure provided such tanks are lined with rubber or other equally suitable material acceptable to the Commandant. See §151.15–3(f)(2).

(b) Notwithstanding the provisions of §151.50–20(b)(3), compressed air may be used to discharge hydrochloric acid from gravity type cargo tanks only if the tanks are of cylindrical shape with dished heads, provided the air pressure does not exceed the design pressure of the tank but in no case shall it exceed 10 pounds per square inch gauge. Such tanks shall be fitted with pressure relief devices and need not be vented to the atmosphere as required by §151.50–20(b)(3).

(c) During cargo transfer, a water hose shall be connected to a water supply and be ready for immediate use. Any leakage or spillage of acid shall be immediately washed down. This requirement can be met by facilities provided from shore.

(d) Spent hydrochloric acid or hydrochloric acid adulterated by other chemicals, inhibitors, oils, solvents, water, etc., shall not be transported in bulk except upon authorization by the Commandant (G–MSO).

(e) The requirements of §151.50–20 are also applicable to the shipment of hydrochloric acid.

[CFGR 70–10, 35 FR 3714, Feb. 25, 1970, as amended by CGD 88–100, 54 FR 40040, Sept. 29, 1989]

§151.50–23 Phosphoric acid.

(a) The term *phosphoric acid* as used in this subpart shall include, in addition to phosphoric acid, aqueous solutions of phosphoric acid, and super phosphoric acid.

(b) Phosphoric acid may be carried in either gravity or pressure type cargo tanks. The tanks shall be rubber-lined, or lined or clad with other suitable material acceptable to the Commandant, or shall be fabricated of a phosphoric acid resistant stainless steel. See §151.15–3(f)(2).

(c) The vessel's shell plating shall not be used as any part of the boundaries of gravity type cargo tanks.

(d) Cargo piping, including valves, fittings, and flanges where exposed to the acid, shall be rubber-lined, or lined, coated or clad with other corrosion-resistant material, or shall be fabricated of a phosphoric acid resistant stainless steel. Vent piping, including flanges and fittings, shall be similarly protected at least to the height of the flangible disk if such is installed.

(e) Phosphoric acid adulterated by other chemicals, inhibitors, oils, solvents, etc., shall not be transported in bulk cargo tanks except upon authorization by the Commandant (G–MSO).

(f) The requirements of §151.50–20 are also applicable to the shipment of phosphoric acid.

[CGFR 70–10, 35 FR 3714, Feb. 25, 1970, as amended by CGD 82–063b, 48 FR 4781, Feb. 3, 1983]

§151.50–30 Compressed gases.

(a) All tank inlet and outlet connections, except safety relief valves, liquid level gauging devices, and pressure gauges shall be marked to designate whether they terminate in the vapor or liquid space. Labels, when used, shall be of corrosion-resistant materials and may be attached to valves.

(b) *Venting.* (1) Except as provided in paragraph (b)(2) of this section each