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cargo transfer and meets paragraph (c) of this section.

(b) Each self-propelled ship must have a shower and eyewash fountain that operates at all times and meets paragraph (c) of this section.

(c) The shower and eyewash fountains required by paragraphs (a) and (b) of this section must—

(1) Operate in any ambient temperature;

(2) Dispense water at a temperature between 0 °C and 40 °C (approx. 32 °F and 104 °F);

(3) Be located on the weatherdeck; and

(4) Be marked ''EMERGENCY SHOWER'' as described in §153.955 (c), (d), and (e), so that the marking is visible from work areas in the part of the deck where the cargo containment systems are located.

[CGD 81–101, 52 FR 7781, Mar. 12, 1987]

§153.217 Access to enclosed spaces and dedicated ballast tanks.

An access opening to an enclosed space or a dedicated ballast tank must meet the requirements for a cargo tank access in §153.254 (b), (c), and (d) if:

(a) The enclosed space or dedicated ballast tank is located within the cargo area of the vessel; or

(b) A part of a cargo containment system lies within the enclosed space or dedicated ballast tank.

[CGD 78–128, 47 FR 21207, May 17, 1982]

§153.219 Access to double bottom tanks serving as dedicated ballast tanks.

(a) Except as prescribed in paragraph (b) of this section, access openings to double bottom tanks serving as dedicated ballast tanks must not be located within a cargo containment system.

(b) Each access opening to a double bottom tank that is a dedicated ballast tank and that is located within a cargo containment system must be:

(1) Enclosed in an access trunk extending to the weatherdeck;

(2) Separated from the cargo containment system by two manhole coverings; or

(3) Approved by the Commandant (G–MSO).

[CGD 78–128, 47 FR 21207, May 17, 1982, as amended by CGD 82–063b, 48 FR 4782, Feb. 3, 1983]

CARGO CONTAINMENT SYSTEMS

§153.230 Type I system.

A type I containment system must meet the following requirements:

(a) The vessel must meet the requirements in subpart F of part 172 of this chapter for a type I hull.

(b) Except as described in §153.235:

(1) It may be no closer to the tankship's shell than 76 cm (approx. 29.9 in.); and

(2) It may not be located in any part of the tankship subject to the damage described in Table 172.135 of this chapter for:

(i) COLLISION PENETRATION, Transverse extent; and

(ii) GROUNDING PENETRATION, Vertical extents from the baseline upward.

[CGD 73–96, 42 FR 49027, Sept. 26, 1977, as amended by CGD 79–023, 48 FR 51009, Nov. 4, 1983]

§153.231 Type II system.

A type II containment system must meet the following requirements:

(a) The vessel must meet the requirements in subpart F of part 172 of this chapter for a type I or II hull.

(b) Except as allowed in §§153.7 and 153.235—

(1) It may be no closer to the tankship's shell than 76 cm (approx. 29.9 in.); and

(2) It may not be located in any part of the tankship subject to the damage described in Table 172.135 of this chapter for GROUNDING PENETRATION, Vertical extent from the baseline upward.

[CGD 73–96, 42 FR 49027, Sept. 26, 1977, as amended by CGD 79–023, 48 FR 51009, Nov. 4, 1983; CGD 81–101, 52 FR 7781, Mar. 12, 1987]

§153.232 Type III system.

A type III containment system must be in either a type I, II, or III hull. The requirements for type I, II, and III hulls are in subpart F of part 172 of this chapter.

[CGD 79–023, 48 FR 51009, Nov. 4, 1983]

§ 153.233 Separation of tanks from machinery, service and other spaces.

(a) To prevent leakage through a single weld failure, the following spaces must be separated from a cargo by two walls, two bulkheads, or a bulkhead and a deck not meeting in a cruciform joint:

(1) Machinery spaces.

(2) Service spaces.

(3) Accommodation spaces.

(4) Spaces for storing potable domestic, or feed water.

(5) Spaces for storing edibles.

(b) Some examples of arrangements that may separate cargo from the spaces listed in paragraph (a) of this section are the following:

(1) Dedicated ballast tanks.

(2) Cargo pumprooms.

(3) Ballast pumprooms.

(4) Tanks not carrying a cargo listed in this part.[3]

(5) A cofferdam aft of the cargo containment systems and whose forward bulkhead is forward of any joint common to an accommodations space and the deck.

(6) Double walled piping or a piping tunnel.

§ 153.234 Fore and aft location.

Except as allowed in § 153.7, each ship must meet the following:

(a) Each cargo containment system and any compartments within which a containment system is located must be forward of a tankship's accommodation spaces.

(b) Except as described in § 153.235, each cargo containment system must be located at least 0.05L aft of the forward perpendicular, but in no case forward of a collision bulkhead.

[CGD 73–96, 42 FR 49027, Sept. 26, 1977, as amended by CGD 81–101, 52 FR 7781, Mar. 12, 1987]

§ 153.235 Exceptions to cargo piping location restrictions.

Cargo piping must not be located in those areas from which a containment system is excluded by §§ 153.230(b), 153.231(b), and 153.234(b) unless the cargo piping:

(a) Drains back to the cargo tank under any heel or trim resulting from the damage specified in § 172.135 of this chapter; and

(b) Enters the cargo tank above the liquid level for a full tank in any condition of heel or trim resulting from the damage specified in § 172.135 of this chapter.

[CGD 73–96, 42 FR 49027, Sept. 26, 1977, as amended by CGD 79–023, 48 FR 51009, Nov. 4, 1983]

§ 153.236 Prohibited materials.

When one of the following paragraphs of this section is referenced in Table 1, the materials listed in that paragraph may not be used in components that contact the cargo liquid or vapor:

(a) Aluminum or aluminum alloys.

(b) Copper or copper alloys.

(c) Zinc, galvanized steel or alloys having more than 10 percent zinc by weight.

(d) Magnesium.

(e) Lead.

(f) Silver or silver alloys.

(g) Mercury.

§ 153.238 Required materials.

When one of the following paragraphs of this section is referenced in Table 1, only those materials listed in that paragraph may be used in components that contact the cargo liquid or vapor:

(a) Aluminum, stainless steel, or steel covered with a protective lining or coating.

(b) With cargo concentrations of 98 percent or greater, aluminum or stainless steel.

(c) With cargo concentrations of less than 98 percent, 304L or 316 stainless steel.

(d) Solid austenitic stainless steel.

(e) Stainless steel or steel covered with a suitable protective lining or coating. (See § 153.266.)

[CGD 73–96, 42 FR 49027, Sept. 26, 1977, as amended by CGD 88–100, 54 FR 40041, Sept. 29, 1989]

§ 153.239 Use of cast iron.

(a) Cast iron used in a cargo containment system must meet the requirements of § 56.60–10(b) of this chapter.

(b) For purposes of this section, the term ''lethal products'' in § 56.60–10(b)

[3] See also §§ 32.56–5 and 32.60–10 of this chapter for limitations on the stowage of combustible liquids adjacent to ignition sources.

means those cargoes that Table 1 references to § 153.525 or § 153.527.

[CGD 78–128, 47 FR 21207, May 17, 1982]

§ 153.240 Insulation.

Cargo containment system insulation made necessary by the requirements of this part must meet the requirements in § 38.05–20 of this chapter. However, the vapor barrier required by § 38.05–20(b) is unnecessary if the insulation is:

(a) Protected from the weather, and attached to a containment system maintained at a temperature in excess of 46°C (approx. 115°F); or

(b) In an atmosphere whose dewpoint is less than the temperature of any surface in contact with the insulation.

CARGO TANKS

§ 153.250 Double-bottom and deep tanks as cargo tanks.

Except in those cases in which Commandant (G–MSO) specifically approves another arrangement, such as a double-bottom or deep tank as a cargo tank, an integral cargo tank or the hold within which an independent cargo tank is located must extend to the weatherdeck.

[CGD 73–96, 42 FR 49027, Sept. 26, 1977, as amended by CGD 82–063b, 48 FR 4781, Feb. 3, 1983]

§ 153.251 Independent cargo tanks.

All independent cargo tank must meet § 38.05–10 (a)(1), (b), (d), and (e)(1) of this chapter.

[CGD 78–128, 47 FR 21208, May 17, 1982]

§ 153.252 Special requirement for an independent cargo tank.

When Table 1 refers to this section, the cargo tank must be an independent tank that meets §§ 38.05–2(d) and 38.05–4(g) of this chapter. (See also § 153.256(b)).

[CGD 78–128, 47 FR 21208, May 17, 1982]

§ 153.254 Cargo tank access.

(a) A cargo tank must have at least one covered manhole opening into the vapor space described in § 153.354.

(b) An access through a vertical cargo tank surface must be at least 60 cm by 80 cm (approx. 23.6 × 31.5 in.) and no more than 60 cm above a foothold grating, or surface on both sides of the access way.

(c) An access through a horizontal cargo tank surface must be at least 60 cm by 60 cm (approx. 23.6 × 23.6 in.).

(d) An access trunk must be no less than 76 cm (approx. 29.9 in.) in diameter.

§ 153.256 Trunks, domes, and openings of cargo tanks.

(a) The hatch of a cargo tank must:

(1) Be at the highest point of the tank; and

(2) Open on or above the weatherdeck.

(b) To be endorsed to carry a cargo requiring an independent cargo tank, a tank must have:

(1) A trunk or dome at the uppermost part of the tank, extending above the weatherdeck;

(2) Its hatch at the top of the trunk or dome; and

(3) No openings below the weatherdeck.

§ 153.266 Tank linings.

A tank lining must be:

(a) At least as elastic as the tank material; and

(b) Applied or attached to the tank as recommended by the lining manufacturer.

PIPING SYSTEMS AND CARGO HANDLING EQUIPMENT

§ 153.280 Piping system design.

(a) Each cargo piping system must meet the standards of Part 56 and §§ 38.10–1(b), 38.10–1(e), and 38.10–10(a) of this chapter.

(b) Piping carrying cargo or cargo residue may not enter any machinery space except a cargo pumproom.

§ 153.281 Piping to independent tanks.

Piping for an independent cargo tank must penetrate the tank only through that part of the tank or dome extending above the weatherdeck.

[CGD 78–128, 47 FR 21208, May 17, 1982]

§ 153.282 Cargo filling lines.

The discharge point of a cargo tank filling line must be no higher above the bottom of the cargo tank or sump than