

(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 (CG-522).

[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.<sup>3</sup>
  - (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

<sup>3</sup>See also §§ 32.56-5 and 32.60-10 of this chapter for limitations on the stowage of combustible liquids adjacent to ignition sources.

## § 153.235

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.

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(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) 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 (CG-522) 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