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(b) Each device required by paragraph (a) must have a readout at the cargo control station.

(c) Except for independent tanks type C, each cargo containment system for a design temperature colder than −55° C (−67°F) must have temperature measuring devices that meet the following:

(1) The number and location of the devices must be specially approved by the Commandant (G–MSO).

(2) The devices must be within the cargo tank's insulation or on the adjacent hull structure.

(3) Each device must show the temperature continuously or at regular intervals of one hour or less.

(4) Each device must actuate an audible and visual alarm at the cargo control station and a remote group alarm in the wheelhouse before the temperature of the steel of the adjacent hull structure is cooled below the lowest temperature allowed for the steel under § 154.172.

(d) For each cargo tank with a design temperature colder than −55°C (−67°F), the number and arrangement of the devices that show the temperature of the tank during cool down procedures must be specially approved by the Commandant (G–MSO).

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 82–063b, 48 FR 4782, Feb. 3, 1983]

§ 154.1345 Gas detection.

(a) Each vessel carrying a cargo that is designated with an ''I'' or ''I and T'' in Table 4 must have:

(1) A fixed flammable gas detection system that meets § 154.1350; and

(2) Two portable gas detectors that can each measure 0 to 100% of the lower flammable limit of the cargo carried.

(b) Each vessel carrying a cargo that is designated with a ''T'' or ''I and T'' in Table 4 must have:

(1) Two portable gas detectors that show if the concentration of cargo is above or below the threshold limit value listed in 29 CFR 1910.1000 for that cargo; and

(2) Fixed gas sampling tubes in each hold space and interbarrier space with:

(i) The number of tubes specially approved by the Commandant (G–MSO);

(ii) Each tube valved and capped above the main deck unless it is connected to a fixed toxic gas detector;

(iii) If the vessel carries cargo that is heavier than the atmosphere of the space, each tube's open end in the lower part of the space;

(iv) If the vessel carries cargo that is lighter than the atmosphere of the space, each tube's open end in the upper part of the space;

(v) If the vessel carries cargo that is heavier than the atmosphere of the space and another cargo that is lighter than the atmosphere of the space, tubes with their open ends in the lower part of the space and tubes with their open ends in the upper part of the space; and

(vi) If the vessel carries cargo that can be both heavier and lighter than the atmosphere of the space, tubes with their open ends in the lower part of the space and tubes with their open ends in the upper part of the space.

(c) A vessel that carries methyl bromide or sulfur dioxide must have a fixed gas detection system that is not located in a gas-safe space.

(d) A vessel that carries sulfur dioxide must have a fixed gas detection system that meets § 154.1350 except paragraph (j).

(e) Each alarm under § 154.1350(e) on a vessel that carries methyl bromide or sulfur dioxide must be set at or below the threshold limit value listed in 29 CFR 1910.1000 for the cargo carried.

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 82–063b, 48 FR 4782, Feb. 3, 1983]

§ 154.1350 Flammable gas detection system.

(a) The vessel must have a fixed flammable gas detection system that has sampling points in:

(1) Each cargo pump room;

(2) Each cargo compressor room;

(3) Each motor room for cargo handling machinery;

(4) Each cargo control station that is not gas-safe;

(5) Each hold space, interbarrier space, and other enclosed spaces, except fuel oil or ballast tanks, in the cargo area, unless the vessel has independent tanks type C; and