SEMI-MEMBRANE TANKS

§ 154.435 General.

(a) The design of a semi-membrane tank, the supporting insulation for the tank, and the supporting hull structure for the tank must be specially approved by the Commandant (G-MSO).

(b) A semi-membrane tank must be designed to meet:

(1) § 154.425 through § 154.432;

(2) § 154.437 through § 154.440; or

(3) § 154.444 through § 154.449.

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

§ 154.436 Design vapor pressure.

The P_o of a semi-membrane tank must not exceed 24.5 kPa gauge (3.55 psig) unless special approval by the Commandant (G-MSO) allows a P_o between 24.5 kPa gauge (3.55 psig) and 69 kPa gauge (10 psig).

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

INDEPENDENT TANK TYPE A

§ 154.437 General.

An independent tank type A must meet § 154.438 through § 154.440.

§ 154.438 Design vapor pressure.

(a) If the surface of an independent tank type A are mostly flat surfaces,the P_o must not exceed 69 kPa gauge (10 psig).

(b) If the surfaces of an independent tank type A are formed by bodies of revolution, the design calculation of the P_o 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]

§ 154.439 Tank design.

An independent tank type A must meet the deep tank standard of the American Bureau of Shipping published in ''Rules for Building and Classing Steel Vessels'', 1981, and must:

(a) Withstand the internal pressure determined under § 154.407;

(b) Withstand loads from tank supports calculated under §§ 154.470 and 154.471; and

(c) Have a corrosion allowance that meets § 154.412.

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 77–069, 52 FR 31630, Aug. 21, 1987]

§ 154.440 Allowable stress.

(a) The allowable stresses for an independent tank type A must:

(1) For tank web frames, stringers, or girders of carbon manganese steel or aluminum alloys, meet $\sigma_B/2.66$ or $\sigma_Y/1.33$, whichever is less; and

(2) For other materials, be specially approved by the Commandant (G-MSO).

(b) A greater allowable stress than required in paragraph (a)(1) of this section may be specially approved by the Commandant (G-MSO) if the equivalent stress (σ_c) is calculated from the formula in Appendix A of this part.

(c) Tank plating must meet the American Bureau of Shipping's deep tank standards, for an internal pressure head that meets § 154.439(a), published in ''Rules for Building and Classing Steel Vessels'', 1981.

[CGD 74–289, 44 FR 26009, May 3, 1979, as amended by CGD 82–063b, 48 FR 4782, Feb. 3, 1983; CGD 77–069, 52 FR 31630, Aug. 21, 1987]

INDEPENDENT TANK TYPE B

§ 154.444 General.

An independent tank type B must be designed to meet §§ 154.445 through 154.449.

§ 154.445 Design vapor pressure.

If the surfaces of an independent tank type B are mostly flat surfaces, the P_o must not exceed 69 kPa gauge (10 psig).

§ 154.446 Tank design.

An independent tank type B must meet the calculations under § 154.448.

§ 154.447 Allowable stress.

(a) An independent tank type B designed from bodies of revolution must have allowable stresses[3] determined by the following formulae:

[3] See Appendix B for stress analyses definitions.