

**§ 178.346–1 [Amended]**

■ 42. In § 178.346–1, the following changes are made:

(a) In paragraph (d)(6), the reference to “§ 178.345–10” is revised to read “§ 178.346–3.”

(b) In paragraph (d)(7), the reference to “§ 178.345–13” is revised to read “§ 178.346–5.”

■ 43. In § 178.346–2, the introductory text and the titles to Table I and Table II are revised to read as follows:

**§ 178.346–2 Material and thickness of material.**

The type and thickness of material for DOT 406 specification cargo tanks must conform to § 178.345–2, but in no case may the thickness be less than that determined by the minimum thickness requirements in § 178.320(a). The following Tables I and II identify the specified minimum thickness values to be employed in that determination.

Table I.—Specified Minimum Thickness of Heads (or Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

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Table II.—Specified Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming<sup>1</sup>

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<sup>1</sup> Maximum distance between bulkheads, baffles, or ring stiffeners shall not exceed 60 inches.

■ 44. In § 178.346–5, paragraph (c) is revised to read as follows:

**§ 178.346–5 Pressure and leakage tests.**

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(c) *Leakage test.* A cargo tank used to transport a petroleum distillate fuel that is equipped with vapor recovery equipment may be leakage tested in accordance with 40 CFR 63.425(e). To satisfy the leakage test requirements of this paragraph, the test specified in 40 CFR 63.425(e)(1) must be conducted using air. The hydrostatic test alternative permitted under Appendix A to 40 CFR Part 60 (“Method 27—Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure-Vacuum Test”) may not be used to satisfy the leakage test requirements of this paragraph. A cargo tank tested in accordance with 40 CFR 63.425(e) may be marked as specified in § 180.415 of this subchapter.

■ 45. In § 178.347–1, the following changes are made:

a. Paragraph (c) is revised.

b. In paragraph (d)(5), the reference to “§§ 178.345–5 and 178.347–5” is revised to read “§ 178.347–3”.

c. In paragraph (d)(6), the reference to “§ 178.345–10” is revised to read “§ 178.347–4”.

d. In paragraph (d)(7), the reference to “§ 178.345–13” is revised to read “§ 178.347–5”.

e. Paragraph (d)(9) is added.

The additions and revisions read as follows:

**§ 178.347–1 General requirements.**

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(c) Any cargo tank built to this specification with a MAWP greater than 35 psig and each tank designed to be loaded by vacuum must be constructed and certified in conformance with the ASME Code (incorporated by reference; see § 171.7 of this subchapter). The external design pressure for a cargo tank loaded by vacuum must be at least 15 psi.

(d) \* \* \*

(9) The strength of a weld seam in a bulkhead that has not been radiographically examined shall be 0.85 of the strength of the bulkhead under the following conditions:

(i) The welded seam must be a full penetration butt weld.

(ii) No more than one seam may be used per bulkhead.

(iii) The welded seam must be completed before forming the dish radius and knuckle radius.

(iv) Compliance test: Two test specimens of materials representative of those to be used in the manufacture of a cargo tank bulkhead must be tested to failure in tension. The test specimen must be of the same thickness and joined by the same welding procedure. The test specimens may represent all the tanks that are made in the same facility within 6 months after the tests are completed. Before welding, the fit-up of the joints on the test specimens must represent production conditions that would result in the least joint strength. Evidence of joint fit-up and test results must be retained at the manufacturers' facility for at least 5 years.

(v) Acceptance criteria: The ratio of the actual tensile stress at failure to the actual tensile strength of the adjacent material of all samples of a test lot must be greater than 0.85.

■ 46. In § 178.347–2, paragraph (a) introductory text and the titles to Table I and Table II are revised to read as follows:

**§ 178.347–2 Material and thickness of material.**

(a) The type and thickness of material for DOT 407 specification cargo tanks must conform to § 178.345–2, but in no case may the thickness be less than that determined by the minimum thickness requirements in § 178.320(a). Tables I and II identify the specified minimum thickness values to be employed in that the determination:

Table I.—Specified Minimum Thickness of Heads (or Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

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Table II.—Specified Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

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**§ 178.348–1 [Amended]**

■ 47. In § 178.348–1(e), the following changes are made:

(a) In paragraph (e)(2)(v), the reference to “§§ 178.345–5 and 178.348–5” is revised to read “§ 178.345–5”.

(b) In paragraph (e)(2)(vi), the reference to “§ 178.345–10” is revised to read “§ 178.348–4”.

(c) In paragraph (e)(2)(vii), the reference to “§ 178.345–13” is revised to read “§ 178.348–5”.

■ 48. In § 178.348–2, paragraph (a) introductory text and the titles to Table I and Table II are revised to read as follows:

**§ 178.348–2 Material and thickness of material.**

(a) The type and thickness of material for DOT 412 specification cargo tanks must conform to § 178.345–2, but in no case may the thickness be less than that determined by the minimum thickness requirements in § 178.320(a). The following Tables I and II identify the “Specified Minimum Thickness” values to be employed in that determination.

Table I.—Specified Minimum Thickness of Heads (or Bulkheads and Baffles When Used as Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

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Table II.—Specified Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL)—Expressed in Decimals of an Inch After Forming

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