

§ 178.345-2 Material and material thickness.

(a) All material for shell, heads, bulkheads, and baffles must conform to Section II of the ASME Code (IBR, see §171.7 of this subchapter) except as follows:

(1) The following steels are also authorized for cargo tanks “constructed in accordance with the ASME Code”, Section VIII.

ASTM A 569

ASTM A 570

ASTM A 572

ASTM A 622

ASTM A 656

ASTM A 715

ASTM A 1008/ A 1008M, ASTM A 1011/A 1011M

(2) Aluminum alloys suitable for fusion welding and conforming with the O, H32 or H34 tempers of one of the following ASTM specifications may be used for cargo tanks “constructed in accordance with the ASME Code”:

ASTM B–209 Alloy 5052

ASTM B–209 Alloy 5086

ASTM B–209 Alloy 5154

ASTM B–209 Alloy 5254

ASTM B–209 Alloy 5454

ASTM B–209 Alloy 5652

All heads, bulkheads and baffles must be of O temper (annealed) or stronger tempers. All shell materials shall be of H 32 or H 34 tempers except that the lower ultimate strength tempers may be used if the minimum shell thicknesses in the tables are increased in inverse proportion to the lesser ultimate strength.

(b) *Minimum thickness.* The minimum thickness for the shell and heads (or baffles and bulkheads when used as tank reinforcement) must be no less than that determined under criteria for minimum thickness specified in §178.320(a).

(c) *Corrosion or abrasion protection.* When required by 49 CFR part 173 for a particular lading, a cargo tank or a part thereof, subject to thinning by corrosion or mechanical abrasion due to the lading, must be protected by providing the tank or part of the tank with a suitable increase in thickness of material, a lining or some other suitable method of protection.

(1) *Corrosion allowance.* Material added for corrosion allowance need not be of uniform thickness if different rates of attack can reasonably be expected for various areas of the cargo tank.

(2) *Lining.* Lining material must consist of a nonporous, homogeneous material not less elastic than the parent metal and substantially immune to attack by the lading. The lining material must be bonded or attached by other appropriate means to the

cargo tank wall and must be imperforate when applied. Any joint or seam in the lining must be made by fusing the materials together, or by other satisfactory means.

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