

DOT specification	Insulation	Bursting pressure (psig)	Minimum plate thickness (inches)	Test pressure (psig)	Manway cover thickness	Bottom outlet	Bottom washout	Reference (179.***)
105A200ALW	Yes	500	5/8	200	² 2 1/2	No	No.	
105A300ALW	Yes	750	5/8	300	² 2 5/8	No	No.	
105A100W	Yes	500	³ 9/16	100	2 1/4	No	No.	
105A200W	Yes	500	³ 9/16	200	2 1/4	No	No.	
105A300W	Yes	750	¹ 11/16	300	⁷ 2 1/4	No	No.	
105A400W	Yes	1,000	¹ 11/16	400	⁷ 2 1/4	No	No.	
105A500W	Yes	1,250	¹ 11/16	500	2 1/4	No	No	102-1, 102-2
105A600W	Yes	1,500	¹ 11/16	600	2 1/4	No	No	102-4, 102-17
109A100ALW	Optional	500	5/8	100	² 2 1/2	No	Optional.	
109A200ALW	Optional	500	5/8	200	² 2 1/2	No	Optional.	
109A300ALW	Optional	750	5/8	300	² 2 5/8	No	Optional.	
109A300W	Optional	500	¹ 11/16	300	2 1/4	No	Optional.	
112A200W	Optional ⁴	500	³ 5/16	200	2 1/4	No	No.	
112A340W	Optional ⁴	850	¹ 11/16	340	2 1/4	No	No.	
112A400W	Optional ⁴	1,000	¹ 11/16	400	2 1/4	No	No.	
112A500W	Optional ⁴	1,250	¹ 11/16	500	2 1/4	No	No.	
114A340W	Optional ⁴	850	¹ 11/16	340	⁶	Optional	Optional ...	103
114A400W	Optional ⁴	1,000	¹ 11/16	400	⁶	Optional	Optional ...	103
120A200ALW	Yes	500	5/8	200	² 2 1/2	Optional	Optional ...	103
120A100W	Yes	500	³ 9/16	100	2 1/4	Optional	Optional ...	103
120A200W	Yes	500	³ 9/16	200	2 1/4	Optional	Optional ...	103
120A300W	Yes	750	¹ 11/16	300	2 1/4	Optional	Optional ...	103
120A400W	Yes	1,000	¹ 11/16	400	2 1/4	Optional	Optional ...	103
120A500W	Yes	1,250	¹ 11/16	500	2 1/4	Optional	Optional ...	103

¹When steel of 65,000 to 81,000 p.s.i. minimum tensile strength is used, the thickness of plates shall be not less than 5/8 inch, and when steel of 81,000 p.s.i. minimum tensile strength is used, the minimum thickness of plate shall be not less than 9/16 inch.

²When approved material other than aluminum alloys are used, the thickness shall be not less than 2 1/4 inches.

³When steel of 65,000 p.s.i. minimum tensile strength is used, minimum thickness of plates shall be not less than 1/2 inch.

⁴Tank cars not equipped with a thermal protection or an insulation system used for the transportation of a Class 2 (compressed gas) material must have at least the upper two-thirds of the exterior of the tank, including manway nozzle and all appurtenances in contact with this area, finished with a reflective coat of white paint.

⁵For inside diameter of 87 inches or less, the thickness of plates shall be not less than 1/2 inch.

⁶See AAR Specifications for Tank Cars, appendix E, E4.01 (IBR, see § 171.7 of this subchapter), and § 179.103-2.

⁷When the use of nickel is required by the lading, the thickness shall not be less than two inches.

[Amdt. 179-52, 61 FR 28679, June 5, 1996 as amended at 66 FR 45390, Aug. 28, 2001; 68 FR 75760, Dec. 31, 2003]

§ 179.102 Special commodity requirements for pressure tank car tanks.

(a) In addition to §§ 179.100 and 179.101 the following requirements are applicable:

(b) [Reserved]

§ 179.102-1 Carbon dioxide, refrigerated liquid.

(a) Tank cars used to transport carbon dioxide, refrigerated liquid must comply with the following special requirements:

(1) All plates for tank, manway nozzle and anchorage of tanks must be made of carbon steel conforming to ASTM A 516/A 516M (IBR, see § 171.7 of this subchapter), Grades 55, 60, 65, or 70, or AAR Specification TC 128-78, Grade B. The ASTM A 516/A 516M plate must also meet the Charpy V-Notch test requirements of ASTM A 20/A 20M (see table 16) (IBR, see § 171.7 of this subchapter) in the longitudinal direction

of rolling. The TC 128 plate must also meet the Charpy V-Notch energy absorption requirements of 15 ft.-lb. minimum average for 3 specimens, and 10 ft.-lb. minimum for one specimen, at minus 50 °F in the longitudinal direction of rolling in accord with ASTM A 370 (IBR, see § 171.7 of this subchapter). Production-welded test plates prepared as required by W4.00 of AAR Specifications for Tank Cars, appendix W (IBR, see § 171.7 of this subchapter), must include impact test specimens of weld metal and heat-affected zone. As an alternate, anchor legs may be fabricated of stainless steel, ASTM A 240/A 240M Types 304, 304L, 316 or 316L, for which impact tests are not required.

(2)-(6) [Reserved]

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(b) [Reserved]

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21347, Nov. 6, 1971; Amdt. 179-28, 46 FR 49906, Oct. 8, 1981; 46 FR 55266, Nov. 9, 1981; Amdt. 179-32, 48 FR 50440, 50441, Nov. 1, 1983; 49 FR 42736, Oct. 24, 1984; Amdt. 179-45, 55 FR 52728, Dec. 21, 1990; Amdt. 179-52, 61 FR 28680, June 5, 1996; 67 FR 51660, Aug. 8, 2002; 68 FR 75760, Dec. 31, 2003]

§ 179.102-2 Chlorine.

(a) Each tank car used to transport chlorine must comply with all of the following:

(1) Tanks must be fabricated from carbon steel complying with ASTM Specification A 516 (IBR, see §171.7 of this subchapter), Grade 70, or AAR Specification TC 128, Grade A or B.

(2)-(3) [Reserved]

(b) [Reserved]

[Amdt. 179-7, 36 FR 14697, Aug. 10, 1971; Amdt. 179-10, 36 FR 21346, Nov. 6, 1971, as amended by Amdt. 179-25, 44 FR 20433, Apr. 5, 1979; Amdt. 179-40, 52 FR 13046, Apr. 20, 1987; Amdt. 179-45, 55 FR 52728, Dec. 21, 1990; Amdt. 179-52, 61 FR 28680, June 5, 1996; 68 FR 75760, Dec. 31, 2003]

§ 179.102-4 Vinyl fluoride, stabilized.

Each tank used to transport vinyl fluoride, stabilized, must comply with the following special requirements:

(a) All plates for the tank must be fabricated of material listed in paragraph (a)(2) of this section, and appurtenances must be fabricated of material listed in paragraph (a)(1) or (a)(2) of this section.

(1) Stainless steel, ASTM A 240/A 240M (IBR, see §171.7 of this subchapter), Type 304, 304L, 316 or 316L, in which case impact tests are not required; or

(2) Steel complying with ASTM Specification A 516 (IBR, see §171.7 of this subchapter); Grade 70; ASTM Specification A 537 (IBR, see §171.7 of this subchapter), Class 1; or AAR Specification TC 128, Grade B, in which case impact tests must be performed as follows:

(i) ASTM A 516/A 516M and A 537/A 537M material must meet the Charpy V-Notch test requirements, in longitudinal direction of rolling, of ASTM A 20/A 20M (IBR, see §171.7 of this subchapter).

(ii) AAR Specification TC 128 material must meet the Charpy V-Notch

test requirements, in longitudinal direction of rolling, of 15 ft.-lb. minimum average for 3 specimens, with a 10 ft.-lb. minimum for any one specimen, at minus 50 °F or colder, in accordance with ASTM A 370 (IBR, see §171.7 of this subchapter).

(iii) Production welded test plates must—

(A) Be prepared in accordance with AAR Specifications for Tank Cars, appendix W, W4.00 (IBR, see §171.7 of this subchapter);

(B) Include impact specimens of weld metal and heat affected zone prepared and tested in accordance with AAR Specifications for Tank Cars, appendix W, W9.00; and

(C) Meet the same impact requirements as the plate material.

(b) Insulation must be of approved material.

(c) Excess flow valves must be installed under all liquid and vapor valves, except safety relief valves.

(d) A thermometer well may be installed.

(e) Only an approved gaging device may be installed.

(f) A pressure gage may be installed.

(g) Aluminum, copper, silver, zinc, or an alloy containing any of these metals may not be used in the tank construction, or in fittings in contact with the lading.

(h) The jacket must be stenciled, adjacent to the water capacity stencil,

MINIMUM OPERATING TEMPERATURE _ °F.

(i) The tank car and insulation must be designed to prevent the vapor pressure of the lading from increasing from the pressure at the maximum allowable filling density to the start-to-discharge pressure of the reclosing pressure relief valve within 30 days, at an ambient temperature of 90 °F.

[Amdt. 179-32, 48 FR 27707, June 16, 1983, as amended at 49 FR 24317, June 12, 1984; 49 FR 42736, Oct. 24, 1984; Amdt. 179-45, 55 FR 52728, Dec. 21, 1990; Amdt. 179-52, 61 FR 28680, June 5, 1996; 65 FR 58632, Sept. 29, 2000; 66 FR 33452, June 21, 2001; 66 FR 45186, 45390, Aug. 28, 2001; 67 FR 51660, Aug. 8, 2002; 68 FR 75758, 75760 Dec. 31, 2003]