

## § 179.300-17

made by the same process as employed in manufacture of tank. Caulking, soldering, or similar repairing is prohibited.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21355, Nov. 6, 1971; 66 FR 45390, Aug. 28, 2001]

### § 179.300-17 Tests of pressure relief devices.

(a) Each valve shall be tested by air or gas before being put into service. The valve shall open and be vapor-tight at the pressure prescribed in § 179.301.

(b) Rupture discs of non-reclosing pressure relief devices must be tested as prescribed in Appendix A, A5.03 of the AAR Manual of Standards and Recommended Practices, Section C—Part III, Specifications for Tank Cars, Specification M-1002, January 1996 (see § 171.7 of this subchapter).

(c) For pressure relief devices of the fusible plug type, a sample of the plug used shall function at the temperatures prescribed in § 179.300-15.

(d) The start-to-discharge and vapor-tight pressures shall not be affected by any auxiliary closure or other combination.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21355, Nov. 6, 1971; 66 FR 45390, Aug. 28, 2001]

### § 179.300-18 Stamping.

(a) To certify that the tank complies with all specification requirements, each tank shall be plainly and permanently stamped in letters and figures  $\frac{3}{8}$  inch high into the metal of valve end chime as follows:

(1) DOT Specification number.

(2) Material and cladding material if any (immediately below the specification number).

(3) Owner's or builder's identifying symbol and serial number (immediately below the material identification). The symbol shall be registered with the Bureau of Explosives, duplications are not authorized.

(4) Inspector's official mark (immediately below the owner's or builder's symbol).

(5) Date of original tank test (month and year, such as 1-64 for January

## 49 CFR Ch. I (10-1-02 Edition)

1964). This should be so placed that dates of subsequent tests may easily be added thereto.

(6) Water capacity—0000 pounds.

(b) A copy of the above stamping in letters and figures of the prescribed size stamped on a brass plate secured to one of the tank heads is authorized.

### § 179.300-19 Inspection.

(a) Tank shall be inspected within the United States and Canada by a competent and impartial inspector acceptable to the Bureau of Explosives. For tanks made outside the United States and Canada, the specified inspection shall be made within the United States.

(b) The inspector shall carefully inspect all plates from which tanks are to be made and secure records certifying that plates comply with the specification. Plates which do not comply with § 179.300-7 shall be rejected.

(c) The inspector shall make such inspection as may be necessary to see that all the requirements of this specification, including markings, are fully complied with; shall see that the finished tanks are properly stress relieved and tested.

(d) The inspector shall stamp his official mark on each accepted tank as required in § 179.300-18, and render the report required in § 179.300-20.

### § 179.300-20 Reports.

(a) Before a tank is placed in service, the inspector shall furnish to the builder, tank owner, Bureau of Explosives and the Secretary, Mechanical Division, Association of American Railroads, a report in approved form certifying that the tank and its equipment comply with all the requirements of this specification.

(b) For builder's Certificate of Construction, see § 179.5 (b), (c), and (d).

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21355, Nov. 5, 1971]

### § 179.301 Individual specification requirements for multi-unit tank car tanks.

(a) In addition to § 179.300 the individual specification requirements are as follows:

DOT specification	106A500-X	106A800-X	110A500-W	110A600-W	110A800-W	110A1000-W
Minimum required bursting pressure, psig .....	( <sup>1</sup> )	( <sup>1</sup> )	1250	1500	2000	2500
Minimum thickness shell, inches .....	1 <sup>3</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>32</sub>	3 <sup>3</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>32</sub>	1 <sup>9</sup> / <sub>32</sub>
Test pressure, psig (see § 179.300-16) .....	500	800	500	600	800	1000
Safety relief devices, psig (see § 179.300-15) .....						
Start-to-discharge, or burst maximum, p.s.i. ....	375	600	375	450	600	700
Vapor-tight, minimum psig .....	300	480	300	360	480	650

<sup>1</sup> None specified.

(b) [Reserved]

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21355, Nov. 6, 1971; Amdt. 179-40, 52 FR 13049, Apr. 20, 1987; 65 FR 58632, Sept. 29, 2000; 66 FR 45390, Aug. 28, 2001]

§ 179.302 [Reserved]

**Subpart F—Specification for Cryogenic Liquid Tank Car Tanks and Seamless Steel Tanks (Classes DOT-113 and 107A)**

SOURCE: Sections 179.400 through 179.401-1 appear at 48 FR 27708, June 16, 1983 (Amdt. 179-32), unless otherwise noted.

Sections 179.500 through 179.500-18 appear at 29 FR 18995, Dec. 29, 1964, unless otherwise noted. Redesignated at 32 FR 5606, Apr. 5, 1967.

**§ 179.400 General specification applicable to cryogenic liquid tank car tanks.**

**§ 179.400-1 General.**

A tank built to this specification must comply with §§ 179.400 and 179.401.

**§ 179.400-3 Type.**

(a) A tank built to this specification must—

(1) Consist of an inner tank of circular cross section supported essentially concentric within an outer jacket of circular cross section, with the out of roundness of both the inner tank and outer jacket limited in accordance with Section VIII, Division I, Paragraph UG-80 of the ASME Code;

(2) Have the annular space evacuated after filling the annular space with an approved insulating material;

(3) Have the inner tank heads designed concave to pressure; and

(4) Have the outer jacket heads designed convex to pressure.

(b) The tank must be equipped with piping systems for vapor venting and transfer of lading, and with pressure relief devices, controls, gages and valves, as prescribed herein.

**§ 179.400-4 Insulation system and performance standard.**

(a) For the purposes of this specification—

(1) *Standard Heat Transfer Rate (SHTR)*, expressed in Btu/day/lb of water capacity, means the rate of heat transfer used for determining the satisfactory performance of the insulation system of a cryogenic tank car tank in cryogenic liquid service (see § 179.401-1 table).

(2) *Test cryogenic liquid* means the cryogenic liquid, which may be different from the lading intended to be shipped in the tank, being used during the performance tests of the insulation system.

(3) *Normal evaporation rate (NER)*, expressed in lbs. (of the cryogenic liquid)/day, means the rate of evaporation, determined by test of a test cryogenic liquid in a tank maintained at a pressure of approximately one atmosphere, absolute. This determination of the NER is the NER test.

(4) *Stabilization period* means the elapsed time after a tank car tank is filled with the test cryogenic liquid until the NER has stabilized, or 24 hours has passed, whichever is greater.

(5) *Calculated heat transfer rate*. The calculated heat transfer rate (CHTR) is determined by the use of test data obtained during the NER test in the formula:

$$q = [N(\Delta h)(90-t_i)] / [V(8.32828)(t_s-t_r)]$$

Where: