

§ 173.304b Additional requirements for shipment of liquefied compressed gases in UN pressure receptacles.

(a) *General.* Liquefied gases and gas mixtures must be offered for transportation in UN pressure receptacles subject to the requirements in this section and §173.304. In addition, the general requirements applicable to UN pressure receptacles in §§173.301 and 173.301b must be met.

(b) *UN pressure receptacle filling limits.* A UN pressure receptacle is authorized for the transportation of liquefied compressed gases and gas mixtures as specified in this section. When a liquefied compressed gas or gas mixture is transported in a UN pressure receptacle, the filling ratio may not exceed the maximum filling ratio (FR) prescribed in this section and the applicable ISO standard. Compliance with the filling limits may be determined by referencing the numerical values and data in Table 2 of P200 of the UN Recommendations (IBR, see §171.7 of this subchapter). Alternatively, the maximum allowable filling limits may be determined as follows:

(1) For high pressure liquefied gases, in no case may the filling ratio of the settled pressure at 65 °C (149 °F) exceed the test pressure of the UN pressure receptacle.

(2) For low pressure liquefied gases, the filling factor (maximum mass of contents per liter of water capacity) must be less than or equal to 95 percent of the liquid phase at 50 °C. In addition, the UN pressure receptacle may not be liquid full at 60 °C. The test pressure of the pressure receptacle must be equal to or greater than the vapor pressure of the liquid at 65 °C.

(3) For high pressure liquefied gases or gas mixtures, the maximum filling ratio may be determined using the formulas in (3)(b) of P200 of the UN Recommendations.

(4) For low pressure liquefied gases or gas mixtures, the maximum filling ratio may be determined using the formulas in (3)(c) of P200 of the UN Recommendations.

(c) *Special filling limits.* Notwithstanding the numerical values shown in Table 2 of P200, the maximum allowable filling limits authorized for the following gases in UN pressure receptacles must be in accordance with the following table:

Identification No.	Proper shipping name	P-200 filling limit	HMR filling limit
UN1020	Chloropentafluoroethane <i>or</i> Refrigerant gas R 115	1.08	1.05
UN1048	Hydrogen bromide	1.54	1.51
UN1973	Chlorodifluoromethane and chloropentafluoroethane mixture <i>or</i> Refrigerant gas R 502	1.05	1.01
UN1976	Octafluorocyclobutane, <i>or</i> Refrigerant gas RC 318	1.34	1.32
UN1982	Tetrafluoromethane <i>or</i> Refrigerant gas R 14	0.94	0.90
UN2035	1,1,1-Trifluoroethane, <i>or</i> Refrigerant gas R 143a	0.75	0.73
UN2192	Germane	1.02	1.00
UN2198	Phosphorous Pentafluoride	1.34	1.25
UN2424	Octafluoropropane <i>or</i> Refrigerant gas R 218	1.09	1.04
UN2599	Chlorotrifluoromethane and trifluoromethane azeotropic mixture <i>or</i> Refrigerant gas R 503	0.20, 0.66	0.17, 0.64

(d) *Tetrafluoroethylene, stabilized, UN1081* must be packaged in a pressure receptacle with a minimum test pressure of 200 bar and a working pressure not exceeding 5 bar.

(e) *Fertilizer ammoniating solution with free ammonia, UN1043* is not authorized in UN tubes or MEGCs.

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