

49 CFR § 178.605 - Hydrostatic pressure test.

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§ 178.605 Hydrostatic pressure test.

(a) General. The hydrostatic pressure test must be conducted for the [qualification](#) of all metal, plastic, and [composite packaging design types](#) intended to contain [liquids](#) and be performed periodically as specified in § 178.601(e). This test is not required for [inner packagings](#) of [combination packagings](#). For internal pressure requirements for [inner packagings](#) of [combination packagings](#) intended for transportation by aircraft, see § 173.27(c) of this subchapter.

(b) Number of test samples. Three test samples are required for each different [packaging](#). For [packagings](#) constructed of stainless steel, monel, or nickel, only one sample is required for periodic retesting of [packagings](#). Exceptions for the number of aluminum and steel sample [packagings](#) used in conducting the hydrostatic pressure test are subject to the [approval](#) of the [Associate Administrator](#).

(c) Special preparation of receptacles for testings. Vented [closures](#) must either be replaced by similar non-vented [closures](#) or the vent must be sealed.

(d) Test method and pressure to be applied. Metal [packagings](#) and [composite packagings](#) other than plastic (e.g., glass, porcelain or stoneware), including their closures, must be subjected to the [test pressure](#) for 5 minutes. Plastic [packagings](#) and [composite packagings](#) (plastic material), including their closures, must be subjected to the [test pressure](#) for 30 minutes. This pressure is the one to be marked as required in § 178.503(a)(5). The [receptacles](#) must be supported in a manner that does not invalidate the test. The [test pressure](#) must be applied continuously and evenly, and it must be kept constant throughout the test period. In addition, [packagings](#) intended to contain [hazardous materials](#) of [Packing Group I](#) must be [tested](#) to a minimum [test pressure](#) of 250 kPa (36 psig). The hydraulic pressure (gauge) applied, taken at the top of the [receptacle](#), and determined by any one of the following methods must be:

- (1) Not less than the total gauge pressure measured in the [packaging](#) (*i.e.*, the vapor pressure of the filling material and the partial pressure of the air or other inert [gas](#) minus 100 kPa (15 psi)) at 55 °C (131 °F), multiplied by a safety factor of 1.5. This total gauge pressure must be determined on the basis of a maximum degree of filling in accordance with § 173.24a(d) of this subchapter and a filling temperature of 15 °C (59 °F);
- (2) Not less than 1.75 times the vapor pressure at 50 °C (122 °F) of the material to be transported minus 100 kPa (15 psi), but with a minimum [test pressure](#) of 100 kPa (15 psig); or
- (3) Not less than 1.5 times the vapor pressure at 55 °C (131 °F) of the material to be transported minus 100 kPa (15 psi), but with a minimum [test pressure](#) of 100 kPa (15 psig).

[Packagings](#) intended to contain [hazardous materials](#) of [Packing Group I](#) must be [tested](#) to a minimum [test pressure](#) of 250 kPa (36 psig).

(e) Criteria for passing the test. A [package](#) passes the [hydrostatic test](#) if, for each test sample, there is no leakage of [liquid](#) from the [package](#).

[Amdt. 178-97, 55 FR 52723, Dec. 21, 1990, as amended at 56 FR 66286, Dec. 20, 1991; Amdt. 178-99, 58 FR 51534, Oct. 1, 1993; Amdt. 178-102, 59 FR 28494, June 2, 1994; 65 FR 50462, Aug. 18, 2000; 66 FR 45386, 45390, Aug. 28, 2001; 73 FR 57007, Oct. 1, 2008; 78 FR 60755, Oct. 2, 2013]