

## § 178.604

would permit spillage of loose explosive substances or articles from the outer packaging.

[Amdt. 178-97, 55 FR 52723, Dec. 21, 1990, as amended at 56 FR 66286, Dec. 20, 1991; 57 FR 45465, Oct. 1, 1992; Amdt. 178-99, 58 FR 51534, Oct. 1, 1993; Amdt. 178-106, 59 FR 67522, Dec. 29, 1994; 65 FR 50462, Aug. 18, 2000; 66 FR 45386, Aug. 28, 2001; 67 FR 61016, Sept. 27, 2002; 69 FR 76186, Dec. 20, 2004; 76 FR 3389, Jan. 19, 2011; 78 FR 1097, Jan. 7, 2013]

### § 178.604 Leakproofness test.

(a) *General.* The leakproofness test must be performed with compressed air or other suitable gases on all packagings intended to contain liquids, except that:

(1) The inner receptacle of a composite packaging may be tested without the outer packaging provided the test results are not affected; and

(2) This test is not required for inner packagings of combination packagings.

(b) *Number of packagings to be tested—*

(1) *Production testing.* All packagings subject to the provisions of this section must be tested and must pass the leakproofness test:

(i) Before they are first used in transportation; and

(ii) Prior to reuse, when authorized for reuse by §173.28 of this subchapter.

(2) *Design qualification and periodic testing.* Three samples of each different packaging must be tested and must pass the leakproofness test. Exceptions for the number of samples used in conducting the leakproofness test are subject to the approval of the Associate Administrator.

(c) *Special preparation—*(1) For design qualification and periodic testing, packagings must be tested with closures in place. For production testing, packagings need not have their closures in place. Removable heads need not be installed during production testing.

(2) For testing with closures in place, vented closures must either be replaced by similar non-vented closures or the vent must be sealed.

(d) *Test method.* The packaging must be restrained under water while an internal air pressure is applied; the method of restraint must not affect the results of the test. The test must be conducted, for other than production testing, for a minimum time of five

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minutes. Other methods, at least equally effective, may be used in accordance with appendix B of this part.

(e) *Pressure applied.* An internal air pressure (gauge) must be applied to the packaging as indicated for the following packing groups:

(1) Packing Group I: Not less than 30 kPa (4 psi).

(2) Packing Group II: Not less than 20 kPa (3 psi).

(3) Packing Group III: Not less than 20 kPa (3 psi).

(f) *Criteria for passing the test.* A packaging passes the test if there is no leakage of air from the packaging.

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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