

Responsible party	Duration
Person performing periodic retesting	Performance test maintained for a single or composite packaging for one year after the test is successfully performed and for a combination packaging or packaging intended for infectious substances for two years after the test is successfully performed.

(2) The test report must be made available to a user of a packaging or a representative of the Department upon request. The test report, at a minimum, must contain the following information:

- (i) Name and address of test facility;
- (ii) Name and address of the person certifying the IBC;
- (iii) A unique test report identification;
- (iv) Date of test report;
- (v) Manufacturer of the IBC;
- (vi) Description of the IBC design type (e.g., dimensions, materials, closures, thickness, representative service equipment, etc.);
- (vii) Maximum IBC capacity;
- (ix) Characteristics of test contents;
- (x) Test descriptions and results (including drop heights, hydrostatic pressures, tear propagation length, etc.); and
- (xi) The signature of the person conducting the test, and name of the person responsible for testing.

[Amdt. 178-103, 59 FR 38074, July 26, 1994, as amended by Amdt. 178-108, 60 FR 40038, Aug. 4, 1995; 66 FR 45386, Aug. 28, 2001; 66 FR 33452, June 21, 2001; 68 FR 75758, Dec. 31, 2003; 73 FR 57008, Oct. 1, 2008; 74 FR 2269, Jan. 14, 2009; 75 FR 5397, Feb. 2, 2010; 78 FR 14715, Mar. 7, 2013; 78 FR 65487, Oct. 31, 2013]

§ 178.802 Preparation of fiberboard IBCs for testing.

(a) Fiberboard IBCs and composite IBCs with fiberboard outer packagings

must be conditioned for at least 24 hours in an atmosphere maintained:

(1) At 50 percent ± 2 percent relative humidity, and at a temperature of $23^{\circ} \pm 2^{\circ} \text{C}$ ($73^{\circ} \text{F} \pm 4^{\circ} \text{F}$); or

(2) At 65 percent ± 2 percent relative humidity, and at a temperature of $20^{\circ} \pm 2^{\circ} \text{C}$ ($68^{\circ} \text{F} \pm 4^{\circ} \text{F}$), or $27^{\circ} \text{C} \pm 2^{\circ} \text{C}$ ($81^{\circ} \text{F} \pm 4^{\circ} \text{F}$).

(b) Average values for temperature and humidity must fall within the limits in paragraph (a) of this section. Short-term fluctuations and measurement limitations may cause individual measurements to vary by up to ± 5 percent relative humidity without significant impairment of test reproducibility.

(c) For purposes of periodic design requalification only, fiberboard IBCs or composite IBCs with fiberboard outer packagings may be at ambient conditions.

[Amdt. 178-103, 59 FR 38074, July 26, 1994, as amended at 66 FR 45386, Aug. 28, 2001]

§ 178.803 Testing and certification of IBCs.

Tests required for the certification of each IBC design type are specified in the following table. The letter X indicates that one IBC (except where noted) of each design type must be subjected to the tests in the order presented:

Performance test	IBC type					
	Metal IBCs	Rigid plastic IBCs	Composite IBCs	Fiber-board IBCs	Wooden IBCs	Flexible IBCs
Vibration	⁶ X	⁶ X	⁶ X	⁶ X	⁶ X	^{1.5} X
Bottom lift	² X	X	X	X	X	
Top lift	² X	² X	² X			^{2.5} X
Stacking	⁷ X	⁷ X	⁷ X	⁷ X	⁷ X	⁵ X
Leakproofness	³ X	³ X	³ X			
Hydrostatic	³ X	³ X	³ X			
Drop	⁴ X	⁴ X	⁴ X	⁴ X	⁴ X	⁵ X
Topple						⁵ X
Righting						^{2.5} X
Tear						⁵ X

¹ Flexible IBCs must be capable of withstanding the vibration test.

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²This test must be performed only if IBCs are designed to be handled this way. For metal IBCs, at least one of the bottom lift or top lift tests must be performed.

³The leakproofness and hydrostatic pressure tests are required only for IBCs intended to contain liquids or intended to contain solids loaded or discharged under pressure.

⁴Another IBC of the same design type may be used for the drop test set forth in § 178.810 of this subchapter.

⁵Another different flexible IBC of the same design type may be used for each test.

⁶The vibration test may be performed in another order for IBCs manufactured and tested under provisions of an exemption before October 1, 1994 and for non-DOT specification portable tanks tested before October 1, 1994, intended for export.

⁷This test must be performed only if the IBC is designed to be stacked.

[Amdt. 178–108, 60 FR 40039, Aug. 4, 1995, as amended at 64 FR 51919, Sept. 27, 1999; 66 FR 45386, 45390, Aug. 28, 2001]

§ 178.810 Drop test.

(a) *General.* The drop test must be conducted for the qualification of all IBC design types and performed periodically as specified in § 178.801(e) of this subpart.

(b) *Special preparation for the drop test.*

(1) Metal, rigid plastic, and composite IBCs intended to contain solids must be filled to not less than 95 percent of their maximum capacity, or if intended to contain liquids, to not less than 98 percent of their maximum capacity. Pressure relief devices must be removed and their apertures plugged or rendered inoperative.

(2) Fiberboard and wooden IBCs must be filled with a solid material to not less than 95 percent of their maximum capacity; the contents must be evenly distributed.

(3) Flexible IBCs must be filled to the maximum permissible gross mass; the contents must be evenly distributed.

(4) Rigid plastic IBCs and composite IBCs with plastic inner receptacles must be conditioned for testing by reducing the temperature of the packaging and its contents to -18°C (0°F) or lower. Test liquids must be kept in the liquid state, if necessary, by the addition of anti-freeze. Water/anti-freeze solutions with a minimum specific gravity of 0.95 for testing at -18°C (0°F) or lower are considered acceptable test liquids, and may be considered equivalent to water for test purposes. IBCs conditioned in this way are not required to be conditioned in accordance with § 178.802.

(c) *Test method.* (1) Samples of all IBC design types must be dropped onto a rigid, non-resilient, smooth, flat and horizontal surface. The point of impact must be the most vulnerable part of the base of the IBC being tested. Following the drop, the IBC must be re-

stored to the upright position for observation.

(2) IBC design types with a capacity of 0.45 cubic meters (15.9 cubic feet) or less must be subject to an additional drop test.

(d) *Drop height.* (1) For all IBCs, drop heights are specified as follows:

(i) Packing Group I: 1.8 m (5.9 feet).

(ii) Packing Group II: 1.2 m (3.9 feet).

(iii) Packing Group III: 0.8 m (2.6 feet).

(2) Drop tests are to be performed with the solid or liquid to be transported or with a non-hazardous material having essentially the same physical characteristics.

(3) The specific gravity and viscosity of a substituted non-hazardous material used in the drop test for liquids must be similar to the hazardous material intended for transportation. Water also may be used for the liquid drop test under the following conditions:

(i) Where the substances to be carried have a specific gravity not exceeding 1.2, the drop heights must be those specified in paragraph (d)(1) of this section for each IBC design type; and

(ii) Where the substances to be carried have a specific gravity exceeding 1.2, the drop heights must be as follows:

(A) Packing Group I: $\text{SG} \times 1.5$ m (4.9 feet).

(B) Packing Group II: $\text{SG} \times 1.0$ m (3.3 feet).

(C) Packing Group III: $\text{SG} \times 0.67$ m (2.2 feet).

(e) *Criteria for passing the test.* For all IBC design types, there may be no damage which renders the IBC unsafe to be transported for salvage or for disposable, and no loss of contents. The IBC shall be capable of being lifted by an appropriate means until clear of the floor for five minutes. A slight discharge from a closure upon impact is not considered to be a failure of the