

§ 178.602 Preparation of packagings and packages for testing.

- (a) Except as otherwise provided in this subchapter, each packaging and package must be closed in preparation for testing and tests must be carried out in the same manner as if prepared for transportation, including inner packagings in the case of combination packagings.
- (b) For the drop and stacking test, inner and single-unit receptacles other than bags must be filled to not less than 95% of maximum capacity (see §171.8 of this subchapter) in the case of solids and not less than 98% of maximum in the case of liquids. Bags containing solids shall be filled to the maximum mass at which they may be used. The material to be transported in the packagings may be replaced by a non-hazardous material, except for chemical compatibility testing or where this would invalidate the results of the tests.
- (c) If the material to be transported is replaced for test purposes by a non-hazardous material, the material used must be of the same or higher specific gravity as the material to be carried, and its other physical properties (grain, size, viscosity) which might influence the results of the required tests must correspond as closely as possible to those of the hazardous material to be transported. Water may also be used for the liquid drop test under the conditions specified in §178.603(e) of this subpart. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected.
- (d) Paper or fiberboard packagings must be conditioned for at least 24 hours immediately prior to testing in an atmosphere maintained—
- (1) At 50 percent ± 2 percent relative humidity, and at a temperature of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ ($73\text{ }^{\circ}\text{F} \pm 4\text{ }^{\circ}\text{F}$). Average values should fall within these limits. 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;
 - (2) At 65 percent ± 2 percent relative humidity, and at a temperature of $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ ($68\text{ }^{\circ}\text{F} \pm 4\text{ }^{\circ}\text{F}$), or $27\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ ($81\text{ }^{\circ}\text{F} \pm 4\text{ }^{\circ}\text{F}$). Average values should fall within these limits. 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; or
 - (3) For testing at periodic intervals only (i.e., other than initial design qualification testing), at ambient conditions.
- (e) Except as otherwise provided, each packaging must be closed in preparation for testing in the same manner as if prepared for actual shipment. All closures must be installed using proper techniques and torques.
- (f) Bung-type barrels made of natural wood must be left filled with water for at least 24 hours before the tests.

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