



AMERICAN NATIONAL
STANDARD

ANSI/ASTM D 1276 - 68 (Reapproved 1978)

Standard Test Method for WATER VAPOR TRANSMISSION OF SHIPPING CONTAINERS BY CYCLE METHOD¹

This Standard is issued under the fixed designation D 1276; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

1. Scope

1.1 This method covers two procedures for determining the water vapor transmission of shipping containers, as follows:

1.1.1 *Procedure A*, for Reclosable Containers, and

1.1.2 *Procedure B*, for Containers Not Designed for Reclosing.

1.2 The test may be applied to the container as packed, or after one or more performance tests such as drum, vibration, drop, or actual shipping tests, as required.

1.3 For small shipping containers requiring greater accuracy in weighing, the water vapor permeability may be determined in accordance with ASTM Method D 1251, Test for Water Vapor Permeability of Packages by Cycle Method.²

2. Significance

2.1 This method is normally used to determine the following:

2.1.1 Evaluate materials and constructions for a specific type of container,

2.1.2 Compare performance of different types of containers,

2.1.3 Determine adequacy of protection for a specific product or application, and

2.1.4 Maintain quality control.

3. Definitions

3.1 *cycle*—one series of test atmospheres to which the test specimens are exposed. Normally one cycle will consist of 1 week of exposure to a temperature of $0 \pm 5^\circ\text{F}$ ($-17.8 \pm 2.8^\circ\text{C}$) to be followed by 3 weeks of exposure at

a temperature of $100 \pm 2^\circ\text{F}$ ($37.8 \pm 1.1^\circ\text{C}$) and a relative humidity of $90 \pm 2\%$.

3.2 *water-vapor transmission of a container*—for this test, the amount of water transmitted into the container from the test atmosphere during one cycle while a desiccant is sealed within.

PROCEDURE A—FOR RECLOSABLE CONTAINERS

4. Apparatus

4.1 *Weighing Balance*—A weighing balance accurate to within 1 g. When the required amount of desiccant is greater than can be weighed on a balance of this sensitivity, two or more receptacles shall be used and weighed individually. When product tests are made, a regular laboratory balance and drying oven or other appropriate equipment are required for making standard moisture determinations peculiar to the product.

4.2 *Receptacle for Desiccant*—A non-moisture absorptive receptacle $\frac{3}{4}$ to $1\frac{1}{2}$ in. (19 to 38 mm) deep shall be used for holding the desiccant within the container being tested. It should be equipped with a cover that will rest on the top rim of the receptacle to protect the desiccant from picking up moisture while being weighed. The size of the weighing receptacle or receptacles shall be such that the exposed area of desiccant is not less than 10 % of the area of

¹ This method is under the jurisdiction of ASTM Committee D-10 on Packaging.

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² *Annual Book of ASTM Standards*, Part 20.