This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D5276 – 19

Standard Test Method for Drop Test of Loaded Containers by Free Fall[1]

This standard is issued under the fixed designation D5276; 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. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers procedures for the drop testing of loaded boxes, cylindrical containers, and bags and sacks by the free-fall method.

1.2 For containers not exceeding 110 lb (50 kg), this test method fulfills the requirements of ISO Standards 2206:1987 and 2248:1985. These ISO standards may describe procedures that do not meet the requirements for this test method.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D880 Test Method for Impact Testing for Shipping Containers and Systems

D996 Terminology of Packaging and Distribution Environments

D2463 Test Method for Drop Impact Resistance of Blow-Molded Thermoplastic Containers

D4003 Test Methods for Programmable Horizontal Impact Test for Shipping Containers and Systems

D4169 Practice for Performance Testing of Shipping Containers and Systems

D4332 Practice for Conditioning Containers, Packages, or Packaging Components for Testing

D6055 Test Methods for Mechanical Handling of Unitized Loads and Large Shipping Cases and Crates

D6179 Test Methods for Rough Handling of Unitized Loads and Large Shipping Cases and Crates

E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process

E680 Test Method for Drop Weight Impact Sensitivity of Solid-Phase Hazardous Materials

2.2 *ISO Standards:*[3]

ISO 2206 Packaging—Complete Filled Transport Packages, Identification of Parts When Testing

ISO 2248 Packaging—Complete Filled Transport Packages, Vertical Impact Test by Dropping

2.3 *Code of Federal Regulations:*

Title 49 —Transportation (49 CFR)[4]

2.4 *TAPPI Standards:*[5]

T 400 Sampling and accepting a single lot of paper, paperboard, containerboard, or related product

T 550 Determination of equilibrium moisture in pulp, paper, and paperboard for chemical analysis

3. Terminology

3.1 *Definitions*—General terms for packaging and distribution environments are found in Terminology D996.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *cylinder*—for the purposes of this test method, a cylinder includes substantially cylindrical containers such as barrels, drums, kegs, and pails (fiber, metal, plastic, or wood, or combinations thereof).

[1] This test method is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.21 on Shipping Containers and Systems - Application of Performance Test Methods.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

[4] Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.

[5] Available from Technological Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Suite 115, Peachtree Corners, GA 30092, http://www.tappi.org.

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