



Designation: D6633 – 18

# Standard Practice for Basic Functional Stability of a Mechanical Pump Dispenser<sup>1</sup>

This standard is issued under the fixed designation D6633; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This practice covers the determination of the basic functional stability of a mechanical pump dispenser with a product.

1.2 This practice covers accelerated usage evaluations of mechanical pump dispensers (spray or flow types) with a product.

1.3 *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.* Specific precautions are given in Section 5.

1.4 *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:*<sup>2</sup>

**D2063** Test Methods for Measurement of Torque Retention for Packages with Continuous Thread Closures

**D3890** Test Method for Number of Strokes to Prime a Mechanical Pump Dispenser

**D4336** Test Methods for Determination of the Output Per Stroke of a Mechanical Pump Dispenser

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

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee F02 on Primary Barrier Packaging and is the direct responsibility of Subcommittee F02.30 on Mechanical Dispensers.

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

## 3. Significance and Use

3.1 This practice is used for determining the accelerated usage of a mechanical pump dispenser for consumer usage.

## 4. Apparatus

4.1 *Containers*, that will allow the mechanical pump dispenser to be affixed to them (**Note 1**) and also be capable of containing product for a period of time at various environmental conditions (**Note 2**).

**NOTE 1**—If possible, the actual container to be marketed should be used.

4.2 *Product*, a sufficient amount to fill the number of containers in accordance with 4.1, reference 10.2.

4.3 *Balance*, with direct reading to 0.01 g. Top loading or analytical style is recommended.

4.4 *Environments*, where the mechanical pump dispenser and product will be kept during the test period.

4.4.1 *Ambient Area*, maintained at  $23 \pm 3^\circ\text{C}$  ( $73 \pm 5.4^\circ\text{F}$ ).

4.4.2 *Oven* ( $45^\circ\text{C}$ ), maintained at  $45 \pm 3^\circ\text{C}$  ( $113 \pm 5.4^\circ\text{F}$ ).

**NOTE 2**—The oven temperature can be changed according to product formulation. If different temperatures are used, this should be noted in the test report discussed in 11.

4.4.3 *Cycle Chamber*, optional, alternating 5 to  $50^\circ\text{C}$  ( $41$  to  $122^\circ\text{F}$ ) every 24 h.

4.5 *Oven-Safe Tray*, with absorbent paper towels laid in the tray.

4.6 *Food Coloring or Dye*, optional.

## 5. Precautions

5.1 Appropriate handling considerations should be given to flammable, toxic, caustic, or other potentially hazardous material used. When testing at any temperature, safety should be the number one consideration and special attention should be used on the flash points of the products tested.

## 6. Sampling

6.1 Based upon the desired precision, sampling shall be performed in accordance with Practice E122.

6.2 In the absence of any special sampling plan, performance shall be based on not less than the number of representative specimens exposed to any of the environmental conditions as specified in Section 9.