



Designation: D6654 – 05 (Reapproved 2010)

Standard Test Method for Basic Storage Stability of a Mechanical Pump Dispenser¹

This standard is issued under the fixed designation D6654; 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 the determination of the basic storage stability of a mechanical pump dispenser with a product.

1.2 This test method covers an evaluation of the weight lost during storage 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

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

3. Significance and Use

3.1 Determining the storage of a mechanical pump dispenser for consumer usage. Products of consumer usage are of the personal care, household, insecticides, food, automotive, and institutional nature. Pharmaceutical and cosmetic products including perfume are not covered under this practice.

4. Apparatus

4.1 *Containers*, that will allow the mechanical pump dispenser to be affixed to them (see **Note 1**) and also be capable

of containing product for a period of time at various environmental conditions (see **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°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 **11.1**.

4.4.3 *Cycle Chamber*, optional, alternating 5 to 50°C (41 to 122°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**.

7. Test Specimens

7.1 Test specimens shall be clean, dry, and previously unused mechanical pump dispensers.

¹ This test method is under the jurisdiction of ASTM Committee **F02** on Flexible Barrier Packaging and is the direct responsibility of Subcommittee **F02.30** on Mechanical Pump Dispensers.

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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.