



Designation: D2063/D2063M – 24

# Standard Test Methods for Measurement of Torque Retention for Packages with Continuous Thread Closures Using Non-Automated (Manual) Torque Testing Equipment<sup>1</sup>

This standard is issued under the fixed designation D2063/D2063M; 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 is a quantitative method that measures removal torque of continuous thread closures on containers, with matching finishes for predetermined environmental conditions over time. The range of values that can be measured are limited to the equipment used.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

NOTE 1—The SI unit system is the recommended system.

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.*

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>

**D996 Terminology of Packaging and Distribution Environments**

**D3198 Test Method for Application and Removal Torque of**

**Threaded or Lug-Style Closures (Withdrawn 2016)**<sup>3</sup>

**D3474 Practice for Calibration and Use of Torque Meters Used in Packaging Applications**

**D4169 Practice for Performance Testing of Shipping Containers and Systems**

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

**E41 Terminology Relating to Conditioning (Withdrawn 2019)**<sup>3</sup>

**E171/E171M Practice for Conditioning and Testing Flexible Barrier Packaging**

**E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method**

## 3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of general packaging and distribution terms, see Terminology **D996**.

3.1.2 For definitions of application torque and removal torque, see Test Method **D3198**.

3.1.3 For definitions regarding conditioning, see Terminology **E41**.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *immediate removal torque*—removal torque that is measured at a stated interval, from 1 to 5 min after closure application.

3.2.2 *torque retention*—a comparison between removal torque at the end of a test period and a predetermined immediate removal torque.

## 4. Summary of Test Methods

4.1 *Test Method A: Static Evaluation*—At predetermined time intervals, the removal torques of representative samples of a container/continuous thread closure system, previously stored at various environmental conditions, are measured.

4.2 *Test Method B: Dynamic Evaluation*—Practice **D4169** is used to develop a uniform system of evaluating the ability of

<sup>1</sup> These test methods are under the jurisdiction of ASTM Committee **F02** on Primary Barrier Packaging and are the direct responsibility of Subcommittee **F02.25** on Rigid Container Closure Systems.

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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.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).