



Designation: D 3810 – 97

Standard Test Method for Minimum Application Torque of Type IA Child-Resistant Closures¹

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1. Scope

1.1 This test method covers the determination of or the recommendation for minimum application torque that results in a fully degraded removal torque that is at a level greater than the maximum expected reverse-ratchet torque for a Type IA child-resistant closure. (See Classification D 3475).

1.2 This test method provides a procedure that will assure the maintenance of the respective child-resistant properties of Type IA child-resistant closures.

1.3 A major limitation to the determination of minimum application torque of Type IA child-resistant closures is because many cappers lack the capability for measuring closure application torques; therefore, minimal recommendations derived from this method are, of necessity, defined in terms of the immediate removal torques.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 3198 Test Method for Application and Removal Torque of Threaded or Lug-Style Closures²

D 3472 Test Method for Reverse-Ratchet Torque of Type IA Child-Resistant Closures²

D 3474 Practice for the Calibration and Use of Torque Meters Used in Packaging Applications²

D 3475 Classification of Child-Resistant Packages²

2.2 Other Standards:

16 CFR 1700 Title 16—Commercial Practices, Chapter II—CPSC, Subchapter E, Poison Prevention Packaging

Act of 1970 Regulations, Part 1700—Poison Prevention Packaging³
ISO Bulletin 2233 Packaging—Complete, Filled, Transport Packages—Part 2: Conditioning for Testing⁴

3. Terminology

3.1 Definitions:

3.1.1 *Type IA child-resistant closure*—a reclosable continuous thread closure requiring a random push-down force while turning to remove from the container. No orientation of the push-down force is necessary.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *application torque*—the moment of a force or the system of forces tending to cause rotation of an appropriate closure over the neck finish of an appropriate container, causing the closure to be applied and secured to the container.

3.2.2 *removal torque*—the moment of a force or the system of forces tending to cause rotation of an appropriate closure in a direction opposite to that of application causing the closure to be unsecured from its position on the neck finish of an appropriate container.

3.2.3 *reverse-ratchet torque*—the moment of a force or the system of forces tending to cause rotation of the outer shell over the inner shell of a Type IA child-resistant closure. The rotation is in a direction opposite to that for closure application.

3.2.4 *degraded removal torque*—that removal torque found, after a suitable period of storage of the package under controlled conditions of temperature and relative humidity, when the liner (or cap, if there is no liner) is at a completely relaxed state and when no significant change occurs in the removal torque after this period of storage.

4. Summary of Test Method

4.1 Representative samples of Type IA child-resistant closures and appropriate containers are preconditioned in a controlled environment of temperature and relative humidity.

¹ This test method is under the jurisdiction of ASTM Committee D10 on Packaging and is the direct responsibility of Subcommittee D10.31 on Child Resistant Packaging.

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² *Annual Book of ASTM Standards*, Vol 15.09.

³ Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

⁴ Available from the American National Standards Institute, 1430 Broadway, New York, NY 10018.