



Standard Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Brush Pilling Tester¹

This standard is issued under the fixed designation D3511/D3511M; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This test method covers the determination of the propensity of a fabric to form pills and other related surface changes on textiles using the brush pilling tester. This procedure is generally intended to be used for upholstery, automotive, luggage and heavy duty uniform fabrics because it is highly abrasive. This does not, however, preclude it from being used for other types of fabrics. If unsure, comparison testing should be performed to ensure that this test method replicates pilling on the final product.

NOTE 1—For other test methods for the pilling resistance of textiles, refer to Test Methods [D3512/D3512M](#), [D3514/D3514M](#), and [D4970/D4970M](#).

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.

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

[D123 Terminology Relating to Textiles](#)

[D1776/D1776M Practice for Conditioning and Testing Textiles](#)

¹ This test method is under the jurisdiction of ASTM Committee [D13](#) on Textiles and is the direct responsibility of Subcommittee [D13.60](#) on Fabric Test Methods, Specific.

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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.

[D3512/D3512M Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Random Tumble Pilling Tester](#)

[D3514/D3514M Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Elastomeric Pad](#)

[D4850 Terminology Relating to Fabrics and Fabric Test Methods](#)

[D4970/D4970M Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Martindale Tester](#)

2.2 ASTM Adjuncts:³

[ADJD3512 Set of 5 Photographic Standards for Random Tumble Pilling Test](#)

3. Terminology

3.1 For all terminology related to D13.59, Fabric Test Methods, General, see Terminology [D4850](#).

3.1.1 The following terms are relevant to this standard: fuzz, pilling resistance, pills.

3.2 For all other terminology related to textiles, see Terminology [D123](#).

4. Summary of Test Method

4.1 Pilling and other changes in surface appearance, such as fuzzing, which occur in normal wear are simulated on laboratory testing machines. Fabrics are subjected to simulated wear conditions: first brushing the specimens to free fiber ends that form fuzz on the surface of the fabric, then rubbing two of the specimens together in circular motion to roll the fiber ends into pills. The degree of fabric pilling is evaluated by comparing the tested specimens with visual standards, which may be actual fabrics or photographs of fabrics, showing a range of pilling resistance. The observed resistance to pilling is reported using an arbitrary rating scale.

5. Significance and Use

5.1 *Acceptance Testing*—This method of testing fabrics for resistance to pilling is not recommended for acceptance testing.

³ Available from ASTM International Headquarters. Order Adjunct No. [ADJD3512](#).