



Designation: D3514/D3514M – 16 (Reapproved 2020)

Standard Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Elastomeric Pad¹

This standard is issued under the fixed designation D3514/D3514M; 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 propensity of a fabric to form pills and other related surface changes on textiles using the Stoll Quartermaster Universal Wear Tester with the frosting attachment. The procedure is generally applicable to all types of woven and knitted fabrics.

NOTE 1—For other current test methods of testing the pilling resistance of textiles, refer to Test Methods [D3511/D3511M](#), [D3512/D3512M](#), 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 are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.3 The fabric may be laundered or dry cleaned before testing.

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

1.5 *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:*²

[D123 Terminology Relating to 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.

Current edition approved July 1, 2020. Published July 2020. Originally approved in 1976. Last previous edition approved in 2016 as D3514–16. DOI: 10.1520/D3514_D3514M-16R20.

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.

[D3511/D3511M Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Brush Pilling Tester](#)

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

[D4848 Terminology Related to Force, Deformation and Related Properties of Textiles](#)

[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:*

[ADJD3512 Set of Photographic Standards for Random Tumble Pilling Test](#)³

[ADJD3514 Three Sets of Five Photographic Standards for Elastomeric Pad Pilling Test](#)⁴

3. Terminology

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

3.2 For all terminology relating to Force, Deformation and Related Properties in Textiles, refer to Terminology [D4848](#).

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

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

4. Summary of Test Method

4.1 Pilling and other changes in surface appearance that occur in normal wear are simulated on a laboratory testing machine. Fabric samples are washed or drycleaned, depending on expected refurbishment, followed by controlled rubbing against an elastomeric pad having specifically selected mechanical properties. The degree of fabric pilling is evaluated by comparison of the tested specimens with visual standards that

³ Available from ASTM International Headquarters. Order Adjunct No. [ADJD3512](#). Original adjunct produced in 1993.

⁴ Available from ASTM International Headquarters. Order Adjunct No. [ADJD3514](#).