



Designation: D4685/D4685M – 15 (Reapproved 2020)

Standard Test Method for Pile Fabric Abrasion¹

This standard is issued under the fixed designation D4685/D4685M; 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 abrasion of pile fabrics when the loss of pile tufts occur, sometimes called pile retention or pile pull out. It includes two procedures:

1.1.1 *Procedure A*—The “Heavy Duty” procedure describes the test option for fabrics over 240 g/m^2 (7 oz/yd²) or fabrics which should meet heavy duty end-use conditions of wear.

1.1.2 *Procedure B*—The “Light Duty” procedure describes the test option for fabrics under 240 g/m^2 (7 oz/yd²) or fabrics which should meet light duty end-use conditions of wear.

1.2 The test method is intended for both regular, ribless woven corduroy or other woven pile fabric constructions.

1.3 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.

1.4 *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

D1776 Practice for Conditioning and Testing Textiles

D2724 Test Method for Bond Strength of Bonded, Fused, and Laminated Apparel Fabrics

D3884 Guide for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double-Head Method)

D4850 Terminology Relating to Fabrics and Fabric Test Methods

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

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

2.2 *ASTM Adjunct:*³

Photographic Scale for Pile Retention

2.3 *AATCC Method:*⁴

TM 135 Dimensional Changes of Fabrics after Home Laundering

3. Terminology

3.1 For all terminology related to D13.59 on Fabric Test Methods, General, see Terminology D4850.

3.2 The following terms are relevant to this standard: abrasion, corduroy, pile fabric, pile retention, velvetreen.

3.3 For definitions of all other textile terms see Terminology D123.

4. Summary of Test Method

4.1 Test specimens are exposed to a specified number of abrasion cycles on face and back separately and then evaluated by viewing the specimen over a light box and comparing to photographic standards. The method measures only the amount of pile pulled out of the base fabric structure and not the surface pile appearance attributes, such as crushed or flatten ribs.

5. Significance and Use

5.1 This test method is considered satisfactory for quality control testing and commercial shipment acceptance.

¹ This test method is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.59 on Fabric Test Methods, General.

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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.

³ A set of six photographic standards for pile retention of corduroy fabrics is available from ASTM International Headquarters. Order Adjunct No. ADJ4685.

⁴ Available from American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Research Triangle Park, NC 27709, <http://www.aatcc.org>.