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Designation: D 3939 – 03

Standard Test Method for Snagging Resistance of Fabrics (Mace)[1]

This standard is issued under the fixed designation D 3939; 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 determines the snagging resistance of a fabric.

1.2 Studies of fabric snagging have shown that this test method is suitable for a range of woven and knitted fabrics made from textured or untextured filament yarns or spun yarns or combinations of these yarns.[2,3] This test method is not suitable for (*1*) open construction fabrics (such as a net) because the points on the mace will snag the felt pad rather than the specimen, (*2*) very heavy or very stiff fabrics that cannot be made to fit tightly on the drum and felt pad, and (*3*) tufted or nonwoven fabrics because the apparatus is designed for woven and knitted fabrics.

1.3 The values stated in either acceptable metric units or in other units shall be regarded separately as the standard. The values stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining values in any way. In case of referee decisions, the metric units will prevail.

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.* Specific precautionary statements are given in Section 7.

2. Referenced Documents

2.1 *ASTM Standards:* [4]

D 123 Terminology Relating to Textiles

D 1335 Test Method for Tuft Bind of Pile Floor Coverings

D 1776 Practice for Conditioning and Testing Textiles

D 2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics

D 3136 Terminology Relating to Care Labeling for Apparel, Textile, Home Furnishing, and Leather Products

D 4467 Practice for Interlaboratory Testing of a Textile Test Method that Produces Non-Normally Distributed Data

D 4850 Terminology Relating to Fabric

D 5362 Test Method for Snagging Resistance of Fabrics (Bean Bag)

2.2 *AATCC Standards:*[5]

65 Test Method for Snag Resistance of Women's Nylon Hosiery (see Note 1)

135 Test Method for Dimensional Changes in Automatic Home Laundering of Woven and Knit Fabrics

NOTE 1—In 1988, the AATCC voted to withdraw this test method from its technical manual; however, the ASTM task group on fabric snagging decided it should be listed as an alternative for testing open construction fabrics.

3. Terminology

3.1 For definitions of textile terms used in this test method: (color contrast, in textiles; distortion, in fabrics; protrusion, in fabrics; snag, in fabrics; snagging resistance, in fabrics), refer to Terminology D 4850.

3.2 For definitions of other textile terms used in this test method, refer to Terminology D 123.

4. Summary of Test Method

4.1 A tubular specimen is placed on a cylindrical drum. Then a mace (spiked ball) bounces randomly against the rotating specimen. Snags are produced to a degree affected by a variety of factors. The degree of fabric snagging is then evaluated by comparison of the tested specimens with visual standards that may be either fabrics or photographs of fabrics.

[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] Finnigan, J. A., "Laboratory Prediction of the Tendency of a Fabric to Snag During Wear," *Textile Institute and Industry*, Vol 10, No. 6, 1972, pp. 164–167.

[3] Leung, P., and Hershkowitz, R., "Snag- and Fuzz-Resistant Double Knits via Fabric Construction," *Textile Research Journal*, Vol 45, No. 2, 1975, pp. 93–102.

[4] 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.

[5] Available from American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

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