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Standard Test Methods for ABRASION RESISTANCE OF TEXTILE FABRICS (OSCILLATORY CYLINDER AND UNIFORM ABRASION METHODS)¹

This standard is issued under the fixed designation D 1175; 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.

1. Scope

1.1 These methods cover the determination of abrasion resistance of textile fabrics using the oscillatory cylinder and uniform abrasion procedures.

NOTE 1—Other procedures for measuring the abrasion resistance of textile fabrics are given in: D 3884, Tests for Abrasion Resistance of Textile Fabrics (Rotary Platform, Double Head Method);² D 3885, Test for Abrasion Resistance of Textile Fabrics (Flexing and Abrasion Method);² D 3886 Test for Abrasion Resistance of Textile Fabrics (Inflated Diaphragm Method);² and AATCC 61 Impeller Tumble Method.³

2. Applicable Documents

2.1 ASTM Standards:

D 123 Definitions of Terms Relating to Textiles²

D 1682 Tests for Breaking Load and Elongation of Textile Fabrics²

D 1776 Practice for Conditioning Textiles for Testing²

3. Definitions

3.1 *abrasion, n*—the wearing away of any part of a material by rubbing against another surface.

3.2 For definitions of other terms used in these methods, refer to Definitions D 123.

4. Summary of Methods

4.1 These methods are used in determining the abrasion resistance of specified textile fabrics, in a controlled manner, by machines which: (1) subject specimens to unidirectional rubbing action under known conditions of pres-

sure, tension, and abrasive action; or (2) rub specimens uniformly in all directions in the plane of the surface of the specimen about every point in it. The various means of evaluation for these methods are described in Sections 13 and 22 on Interpretation of Results.

5. Uses and Significance

5.1 The measurement of the resistance to abrasion of textile and other materials is very complex. The resistance to abrasion is affected by many factors, such as the inherent mechanical properties of the fibers; the dimensions of the fibers; the structure of the yarns; the construction of the fabrics; and the type, kind, and amount of finishing material, added to the fibers, yarns, or fabric.

5.2 The resistance to abrasion is also greatly affected by the conditions of the tests, such as the nature of abradant; variable action of the abradant over the area of specimen abraded, the tension of the specimen, the pressure between the specimen and abradant, and the dimensional changes in the specimen.

5.3 Abrasion tests are all subject to variation due to changes in the abradant during specific tests. The abradant must accordingly be discarded at frequent intervals or checked period-

¹ These methods are under the jurisdiction of ASTM Committee D-13 on Textiles and are the direct responsibility of Subcommittee D13.59 on Fabric Test Methods, General.

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² Annual Book of ASTM Standards, Part 32.

³ Available from American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, N.C. 27709.