



Standard Guide for Standard Test Methods and Practices for Evaluating Pile Yarn Floor Covering¹

This standard is issued under the fixed designation D 6719; 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 guide provides users with an index of procedures in the form of test methods, practices, and related documents that are currently used in industry for determination of properties of pile yarn floor covering. This guide is not considered as all-inclusive for testing procedures related to pile yarn floor covering.

1.1.1 It is the responsibility of the user to choose from this guide those procedures that provide test information on properties of interest for pile yarn floor covering that relate to its physical and esthetic properties and performance.

1.1.2 Procedures for particular properties appear in the following sections:

Property	Section
Appearance Change	8.1-8.4
Antimicrobial	8.5
Binding Sites	8.6
Backing Characteristics	8.7
Colorfastness	8.8-8.12
Carpets, Cleaning	8.13 and 8.14
Conditioning	7
Delamination Resistance	8.15
Fiber Analysis	8.16
Flammability	8.17-8.20
Pile Thickness	8.21
Mass per Unit Area	8.22
Soiling	8.23-8.26
Stain Resistance	8.27
Static	8.28
Tuft Bind	8.29
Tuft Height	8.30
Tuft Element Length	8.31

1.2 In general, values stated in SI units are to be regarded as the standard. Values given in parentheses are for information only and may be approximate.

1.2.1 Some of the listed procedures may cite other units as standard. In this event, language of the procedure is controlling.

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:

- D 123 Terminology Relating To Textiles²
- D 418 Test Methods for Testing Pile Yarn Floor Covering Construction²
- D 629 Test Method for Quantitative Analysis of Textiles²
- D 1335 Test Method for Tuft Bind of Pile Yarn Floor Covering²
- D 1776 Practice for Conditioning and Testing Textiles²
- D 2646 Test Methods for Backing Fabrics Characteristics of Pile Yarn Floor Coverings²
- D 2859 Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials²
- D 3936 Test Method for Resistance to Delamination of the Secondary Backing of Pile Yarn Floor Coverings³
- D 5251 Practice for the Operation of the Tetrapod Walker Tester³
- D 5252 Practice for the Operation of the Hexapod Tumble Drum Tester³
- D 5417 Practice for the Operation of the Vetterman Drum Tester³
- D 5684 Terminology Relating to Pile Floor Coverings³
- D 5793 Test Method for Binding Sites Per Unit Length or Width of Pile Yarn Floor Coverings³
- D 5823 Test Methods for Tuft Height of Pile Yarn Floor Coverings³
- D 5848 Test Method for Mass Per Unit Area of Pile Yarn Floor Coverings³
- D 6119 Practice for Creating Surface Appearance Changes in Pile Yarn Floor Covering From Foot Traffic³
- D 6283 Test Method for Tuft Element Length of Uncoated Pile Yarn Floor Covering³
- D 6540 Test Method for Accelerated Soiling of Pile Yarn Floor Covering
- E 122 Practice for Choice of Sample Size to Estimate a Measure of Quality for a Lot Process⁴
- E 648 Test Method for Critical Radiant Flux of Floor Covering Systems using a Radiant Heat Energy Source⁵

² Annual Book of ASTM Standards, Vol 07.01.

³ Annual Book of ASTM Standards, Vol 07.02.

⁴ Annual Book of ASTM Standards, Vol 11.01.

⁵ Annual Book of ASTM Standards, Vol 04.07.

¹ This guide is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.21 on Pile Yarn Floor Covering. Current edition approved Sept. 10, 2001. Published October 2001.

E 662 Test Method for Specific Optical Density of Smoke Generated by Solid Materials⁵

2.2 AATCC Test Methods:

16 Colorfastness to Light⁶

20 Fiber Analysis: Quantitative⁶

20A Fiber Analysis: Quantitative⁶

107 Colorfastness to Water⁶

121 Carpet Soiling: Visual Rating Method⁶

122 Carpet Soiling: Service Soiling Method⁶

123 Carpet Soiling: Accelerated Soiling Method⁶

129 Colorfastness to Ozone in the Atmosphere Under High Humidities⁶

134 Electrostatic Propensity of Carpets⁶

138 Cleaning: Washing of Textile Floor Coverings⁶

164 Colorfastness to Oxides of Nitrogen in the Atmosphere Under High Humidities⁶

165 Colorfastness to Crocking: Carpets-AATCC Crockmeter Method⁶

171 Carpets: Cleaning of; Hot Water Extraction Method⁶

174 Antimicrobial Activity Assessment of Carpets⁶

175 Stain Resistance: Pile Floor Coverings⁶

2.3 Federal Regulations:

Title 16, Chapter II, Part 1630 Standard for the Surface Flammability of Carpets and Rugs (FF 1-70)⁷

3. Terminology

3.1 Definitions:

3.1.1 For definitions of pile yarn floor covering related terms used in this guide, refer to Terminology Relating to Pile Yarn Floor Coverings D 5684. For definitions of other textile terms used in this guide refer to Terminology D 123.

4. Significance and Use

4.1 This guide is useful to select test methods and or practices that are commonly used in industry for evaluating pile yarn floor covering. Refer to the particular test method or practice cited for the property of interest for significance and use statements.

5. Sampling

5.1 Sampling Units:

5.1.1 *Uncoated Floor Covering*—The basic sampling unit of uncoated floor covering is a production roll.

5.1.2 *Coated Floor Covering*—The basic sampling unit of coated floor covering is a shipping roll. The number of shipping rolls obtained from each production roll ranges from one to over ten.

5.2 *Lot Sample*—In quality acceptance and quality control situations, take a lot sample as directed in Practice E 122 when statistical knowledge of the product variability and test method precision is available and a decision has been made on the maximum deviation that can be tolerated between the estimate to be made from the lot sample and the result that would be

obtained by measuring every sampling unit of the lot. Otherwise the number of sampling units is a lot sample and the use of the test results obtained from the individual test samples shall be in accordance with the manufacturer's Quality Control program or with the specification agreed upon between purchaser and the supplier.

5.3 *Laboratory Sampling Unit*—A laboratory sampling unit shall consist of full width section of floor covering cut from one end of each roll in the lot sample and shall be at least 100 mm (4 in.) longer than the specimens required for the test being conducted. For coated pile yarn floor covering exclude the seam end of a production roll.

5.4 *Test Specimens*—From each laboratory sampling unit, take as many test specimens as directed by the procedure being used that will yield a standard test result.

6. Calibration

6.1 Many of the test methods cited herein require the use of properly calibrated testing equipment. All testing systems should be verified before use. Refer to the individual test methods for specific information on the preparation, calibration, and verification of apparatus.

7. Conditioning

7.1 Condition the test specimens in the specific atmosphere detailed in the method of interest. If a conditioning procedure is not specified, bring the test specimens to moisture equilibrium in the standard atmosphere for testing textiles as directed in Practice D 1776 .

8. Test Methods and Practices

8.1 Create surface appearance changes in pile yarn floor coverings as directed in Practice D 6119.

8.2 Produce changes in appearance due to changes in surface structure by mechanical action of the Vettermann Drum as directed in Practice D 5417.

8.3 Produce changes in appearance due to changes in surface structure by mechanical action of the Hexapod Drum as directed in Practice D 5252.

8.4 Produce changes in appearance due to changes in surface structure by mechanical action of the Tetrapod Drum as directed in Practice D 5251.

8.5 Assess the antimicrobial activity of new carpet materials as directed in AATCC 174.

8.6 Determine the number of binding sites per unit length or width of pile yarn floor covering as directed in Test Method D 5793.

8.7 Determine the fabric backing characteristics of pile yarn floor coverings as directed in Test Methods D 2646.

8.8 Determine the colorfastness to light as directed in AATCC 16.

8.9 Determine the colorfastness to crocking as directed in AATCC 165.

8.10 Determine the colorfastness to ozone in the atmosphere under high humidity as directed in AATCC 129.

8.11 Determine colorfastness to water as directed in AATCC 107.

8.12 Determine the colorfastness to oxides of nitrogen in the atmosphere under high humidity as directed in AATCC 164.

⁶ Available from the American Association of Textile Chemist and Colorists P.O. Box 12215, Research Triangle Park, N.C. 27709.

⁷ Available from Government Printing Office, North Capital and H Streets, N.W., Washington D.C. 20401.

8.13 Carpets: Cleaning of, Hot water extraction method as directed in AATCC 171.

8.14 Simulate changes that occur in cleaning; Washing of textile floor coverings as directed in AATCC 138.

8.15 Determine the resistance to delamination as directed in Test Method D 3936.

8.16 Perform fiber analysis as directed in Test Method D 629, and or AATCC 20 and 20A.

8.17 Determine the ignition characteristics of finished textile floor covering as directed in Test Method D 2859.

8.18 Determine the ignition characteristics of finished textile floor coverings as directed in the Code of Federal Regulations, Title 16, Chapter II, Part 1630.

8.19 Determine the optical density of smoke generated by solid materials as directed in Test Method E 662.

8.20 Measure the critical radiant flux of horizontally mounted floor covering systems exposed to a flaming ignition source as directed in Test Method E 648.

8.21 Determine the pile thickness of pile yarn floor coverings as directed in Test Method D 418 section 10, and 11.

8.22 Determine the mass per unit area of pile yarn floor coverings as directed in Test Method D 5848.

8.23 Determine the soiling propensity of pile yarn floor covering as directed in Test Method D 6540.

8.24 Compare the soiling propensity of two or more carpets as directed in AATCC 123.

8.25 Evaluate the surface soiling of carpets and rugs as directed in AATCC 121.

8.26 Evaluate the degree of cleanness of pile yarn floor coverings exposed normal foot traffic as directed in AATCC 122.

8.27 Determine the resistance to staining as directed in AATCC 175.

8.28 Determine the static generating propensity of carpets as directed in AATCC 134.

8.29 Measure the tuft bind of pile yarn floor covering as directed in Test Method D 1335.

8.30 Determine the tuft height of pile yarn floor coverings as directed in Test Methods D 5823.

8.31 Determine the tuft element length of uncoated pile yarn floor coverings as directed in Test Method D 6283.

9. Keywords

9.1 antimicrobial; appearance change; backing characteristics; binding sites; carpet; colorfastness; delamination; fiber analysis; flammability; mass per unit area; pile thickness; pile yarn floor covering; soiling; stain resistance; static; tuft bind; tuft element length; tuft height

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