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Standard Performance Specification for Woven Slipcover Fabrics[1]

This standard is issued under the fixed designation D4113; 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 performance specification covers woven fabrics comprised of any textile fiber or mixture of fibers to be used in slipcovers.

1.2 These requirements apply to both the length and width directions for those properties where fabric direction is pertinent.

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:*[2]

D123 Terminology Relating to Textiles

D434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam (Withdrawn 2003)[3]

D1336 Test Method for Distortion of Yarn in Woven Fabrics

D2261 Test Method for Tearing Strength of Fabrics by the Tongue (Single Rip) Procedure (Constant-Rate-of-Extension Tensile Testing Machine)

D2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics

D5034 Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)

2.2 *AATCC Test Methods:*[4]

8 Colorfastness to Crocking: AATCC Crockmeter Method

15 Colorfastness to Perspiration

16 Colorfastness to Light

23 Colorfastness to Burnt Gas Fumes

61 Colorfastness to Laundering, Home and Commercial: Accelerated

116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method

124 Appearance of Fabrics After Repeated Home Launderings

129 Colorfastness to Ozone in the Atmosphere Under High Humidities

132 Colorfastness to Drycleaning

135 Dimensional Changes in Automatic Home Laundering of Woven or Knit Fabrics

187 Dimensional Changes of Fabrics: Accelerated

Evaluation Procedure No. 1 Gray Scale for Color Change

Evaluation Procedure No. 2 Gray Scale for Staining

Evaluation Procedure No. 8 AATCC 9–Step Chromatic Transference Scale

2.3 *Other Document:*[5]

UFAC Fabric Classification Test Method for Cigarette Smolder Resistance

2.4 *Military Standard*[6]

ASQ/ANSI Z1.4 Sampling Procedures and Tables for Inspection by Attributes

NOTE 1—Reference to test methods in this performance specification give only the permanent part of the designation of ASTM, AATCC, or other test methods. The current editions of each test method cited shall prevail.

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of textile terms used in this performance specification, refer to Terminology D123 and the Technical Manual of the American Association of Textile Chemists and Colorists.

3.2 Definitions found in a dictionary of common terms are suitable for use in this performance specification.

4. Specification Requirements

4.1 The properties of woven fabrics for use in slipcovers shall conform to the specification requirements in Table 1.

[1] This performance specification is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.63 on Home Furnishings.

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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] The last approved version of this historical standard is referenced on www.astm.org.

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

[5] Available from UFAC Central, Box 2436, High Point, NC 27261.

[6] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

TABLE 1 Specification Requirements

NOTE 1—Class for color change, color transfer, and DP rating is based on a numerical scale of 5 for negligible or no color change, color transfer, or wrinkle to 1 for severe color change, color transfer, or wrinkle.

Characteristic	Requirements	Section
Breaking strength (load)(CRT)	220 N (50 lbf) min	6.1
Yarn slippage	6-mm (¼-in.) separation at 67 N (15 lbf), min	6.2
Tongue-tear strength	13 N (3.0 lbf) min	6.3
Yarn distortion	2.5 mm (0.10 in), max at 9-N (2-lbf) load	6.4
Dimensional change:		
Laundering	2.5 %, max	6.5.1
Dry cleaning	2.5 %, max	6.5.2
Colorfastness:		
Burnt gas fumes—1 cycle:		6.6.1
Shade change after one laundering or one dry cleaning	Grade 4[A] , min	
Laundering:		6.6.2
Shade change	Grade 4[A] , min	
Staining	Grade 3[B] , min	
Dry cleaning:		6.6.3
Shade change	Grade 4[A] , min	
Crocking:		6.6.4
Dry	Grade 4[C] , min	
Wet	Grade 3[C] , min	
Perspiration:		6.6.5
Shade change	Grade 4[A] , min	
Staining	Grade 3[B] , min	
Light (40 AATCC FU) (xenon-arc)	Step 4[A] , min	6.6.6
Ozone	Grade 4, min	6.6.7
Fabric appearance (see 6.7.1.1)	SA 3.5[D] , min	6.7
Flammability:	pass	6.8

[A] AATCC Gray Scale for Color Change.
[B] AATCC Gray Scale for Staining.
[C] AATCC Chromatic Transference Scale.
[D] For durable press fabrics only.

5. Significance and Use

5.1 Fabrics intended for this end-use should meet all of the requirements listed inTable 1 .

5.2 It should be recognized that fabrics can be produced with an almost infinite number of combination of construction variables (for example, type of fibers, percentage of fibers, yarn twist, yarn number, warp and pick count, chemical and mechanical finishes). Additionally, fashion or aesthetics dictate that the ultimate consumer may find acceptable articles made from fabrics that do not conform to all of the requirements in Table 1.

5.2.1 Hence, no single performance specification can possibly apply to all the various fabrics that could be utilized for this end-use.

5.3 The uses and significance of particular properties and test methods are discussed in the appropriate sections of the specified test methods.

6. Test Methods (see Note 1)

6.1 *Breaking Force*— Determine the dry breaking force, in the standard atmosphere for testing textiles, as directed in Test Method D5034, using a constant rate of extension (CRE) tensile-testing machine.

6.2 *Resistance to Yarn Slippage*—Determine the resistance to yarn slippage as directed in Test Method D434.

NOTE 2—The precision of Method D434 is being established, and it may not be suitable for fabrics with low-yarn counts in terms of ends and picks per inch (see 5.2).

6.3 *Tongue-Tear Strength*—Determine the tongue-tear strength as directed in Test Method D2261.

6.4 *Yarn Distortion*— Determine the yarn distortion as directed in Test Method D1336.

6.5 *Dimensional Change:*

6.5.1 *Laundering*—Determine the maximum dimensional change after five launderings as directed in the applicable procedure in AATCC Test Method 135 or as agreed upon between the purchaser and the supplier (Note 3).

6.5.1.1 The wash conditions and drying procedure shall be as specified by the supplier.

6.5.2 *Drycleaning*— Determine the maximum-dimensional change after three dry cleanings as directed in 10.1.1 through 10.1.5 of Test Methods D2724 or as agreed upon between the purchaser and the supplier (Note 3).

NOTE 3—Launderable fabrics are expected to be dry-cleanable except where all or part of the fabric is not dry-cleanable and is so labeled. For example, the fabric could contain a functional finish that is soluble in the solvent, or the fiber could be degraded by the solvent, as would be the case with poly(vinyl chloride) fiber. "Dry-cleanable" goods are to be dry-cleaned only.

6.6 *Colorfastness:*

6.6.1 *Burnt Gas Fumes*— Determine the colorfastness to burnt gas fumes on the original fabric and after one laundering or one dry cleaning as directed in AATCC Test Method 23 after 1 cycle.

NOTE 4—Washing conditions shall be the same as those used in 6.5.1.1. Dry-cleaning conditions shall be the same as those used in 6.5.2.

6.6.2 *Laundering*—Determine the colorfastness to laundering as directed in the applicable procedure of AATCC Test Method 61. The test conditions shall be as specified by the supplier (Note 3).

6.6.3 *Dry cleaning*—Determine colorfastness to dry cleaning as directed in AATCC Test Method 132 (Note 3).

6.6.4 *Crocking*—Determine colorfastness to dry and wet crocking as directed in AATCC Test Method 8 for solid shades and AATCC Test Method 116 for prints.

6.6.5 *Perspiration*— Determine colorfastness to perspiration as directed in AATCC Test Method 15.

6.6.6 *Light*—Determine colorfastness to light as directed in AATCC Test Method 16.

NOTE 5—There are distinct differences in spectral distribution between the various types of machines listed in AATCC Test Method 16, with no overall correlations between them. Consequently, these machines cannot be used interchangeably. In case of controversy, results obtained with the Water-Cooled Xenon-Arc machine listed in Option E shall prevail.

6.6.7 *Ozone*—Determine the colorfastness to ozone after two cycles as directed in AATCC Test Method 129.

6.7 *Fabric Appearance*—Determine the fabric appearance as directed in AATCC Test Method 124 after laundering using the wash-and-wear cycle or the normal cycle as agreed upon between the purchaser and the supplier as specified in 6.5.1.1 for washable fabrics or after dry cleaning as specified in 6.5.2 for dry-cleanable fabrics (see Note 3).

6.7.1 For fabrics not intended for use in durable press determine the fabric smoothness after pressing as specified in 10.2.3 of Test Methods D2724.

6.7.1.1 The fabric smoothness or durable-press (DP) rating of such fabrics, and the DP rating of dry-cleaned fabrics, shall have decreased no more than ½ rating from that of the fabric before it is laundered or dry-cleaned.

6.8 *Flammability*— The flammability requirements shall be as agreed upon between the purchaser and the supplier, provided they meet or exceed applicable federal, state, or local mandatory standards.

6.8.1 All slipcover fabrics shall be evaluated for cigarette ignition resistance by the UFAC Fabric Classification Test Method.

7. Keywords

7.1 fabric; performance; specification; upholstery