



Designation: D4113 – 24

Standard Performance Specification for Woven Slipcover Fabrics¹

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *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

D434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam (Withdrawn 2003)³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

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

2.2 AATCC Test Methods:⁴

TM8 Test Method for to Crocking: Crockmeter

TM15 Test Method for Colorfastness to Perspiration

TM16.3 Test Method for Colorfastness to Light: Xenon-Arc

TM23 Test Method for Colorfastness to Burnt Gas Fumes

TM 61 Test Method for Colorfastness to Laundering: Accelerated

TM 116 Test Method for Colorfastness to Crocking: Rotary Vertical Crockmeter Method

TM124 Test Method for Smoothness Appearance of Fabrics After Home Laundering

TM129 Test Method for Colorfastness to Ozone in the Atmosphere Under High Humidities

TM132 Test Method for Colorfastness to Drycleaning

TM135 Test Method for Dimensional Changes of Fabrics after Home Laundering

TM158 Test Method for Dimensional Changes on Drycleaning in Perchloroethylene: Machine

TM187 Test Method for Dimensional Changes of Fabrics: Accelerated

EP1 Evaluation Procedure for Gray Scale for Color Change

EP2 Evaluation Procedure for Gray Scale for Staining

EP8 Evaluation Procedure for AATCC 9-Step Chromatic Transference Scale

M11 Glossary of AATCC Standard Terminology

2.3 Other Document:⁵

UFAC Fabric Classification Test Method for Cigarette Smolder Resistance

2.4 Military Standard⁶

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

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

3. Terminology

3.1 Definitions:

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 DLA Document Services, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094, <http://quicksearch.dla.mil>.

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.

Current edition approved Nov. 1, 2024. Published November 2024. Originally approved in 1982. Last previous edition approved in 2024 as D4113 – 02(2024). DOI: 10.1520/D4113-24.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. 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.

3.1.1 For definitions of textile terms used in this performance specification, refer to Terminology **D123** and AATCC M11.

4. Specification Requirements

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

5. Significance and Use

5.1 Fabrics intended for this end-use should meet all of the requirements listed in **Table 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.

TABLE 1 Specification Requirements

NOTE 1—Grade for color change, color transfer, and appearance 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
Drycleaning	±2.5 %, max	6.5.2
Colorfastness:		
Burnt gas fumes—1 cycle:		6.6.1
Shade change after one laundering or one drycleaning	Grade 4 ^A , min	
Laundering:		6.6.2
Shade change	Grade 4 ^A , min	
Staining	Grade 3 ^B , min	
Drycleaning:		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 AFU)	Grade 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.

5.3 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 Test 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 TM135 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 drycleanings as directed in AATCC TM158 or as agreed upon between the purchaser and the supplier (**Note 3**).

NOTE 3—Launderable fabrics are expected to be drycleanable except where all or part of the fabric is not drycleanable 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 polyvinyl chloride fiber. Goods labeled “dryclean only” are not tested for laundering.

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 TM23 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 TM61. The test conditions shall be as specified by the supplier (**Note 3**).

6.6.3 *Drycleaning*—Determine colorfastness to drycleaning as directed in AATCC TM132 (**Note 3**).

6.6.4 *Crocking*—Determine colorfastness to dry and wet crocking as directed in AATCC TM8 for solid shades and AATCC TM116 for prints.

6.6.5 *Perspiration*—Determine colorfastness to perspiration as directed in AATCC TM15.

6.6.6 *Light*—Determine colorfastness to light as directed in AATCC TM16.3.

NOTE 5—In case of controversy, results obtained with the Water-Cooled Xenon-Arc machine specified in Option 3 shall prevail.