



Designation: ~~D4111-02~~ Designation: D4111 - 12

Standard Performance Specification for Woven Napery and Tablecloth Fabrics: Household and Institutional¹

This standard is issued under the fixed designation D4111; 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 napery and tablecloths (household and institutional).

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](#)

D1336 [Test Method for Distortion of Yarn in Woven Fabrics](#)

D1424 [Test Method for Tearing Strength of Fabrics by Falling-Pendulum \(Elmendorf-Type\) Apparatus](#) ~~D1682 Standard Methods of Test for Breaking Load and Elongation of Textile Fabrics³~~

D2261 [Test Method for Tearing Strength of Fabrics by the Tongue \(Single Rip\) Procedure \(Constant-Rate-of-Extension Tensile Testing Machine\)](#) ~~D2262 Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine)³~~

D2724 [Test Methods for Bonded, Fused, and Laminated Apparel Fabrics](#)

~~D2905 Practice for Statements on Number of Specimens for Textiles~~

D5034 [Test Method for Breaking Strength and Elongation of Textile Fabrics \(Grab Test\)](#)

D7023 [Terminology Relating to Home Furnishings](#) ~~9a21432c-288a-4b7d-8b71-e1e5b11ca4d0/astm-d4111-12~~

2.2 AATCC Methods:³

8 Colorfastness to Crocking: ~~AATCC Crockmeter Method~~

16 ~~Colorfastness to Light~~ Option 3 Colorfastness to Light: Xenon-Arc Lamp, Continuous Light

23 Colorfastness to Burnt Gas Fumes

61 ~~Colorfastness to Washing, Domestic, and Laundering, Commercial: Accelerated~~ Colorfastness to Laundering: Accelerated

92 Chlorine, Retained, Tensile Loss: Single Sample Method

96 Dimensional Changes in Commercial Laundering of Woven and Knitted ~~Textiles~~ Fabrics Except Wool

116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method

124 ~~Appearance of Durable Press Fabrics After Repeated Home Launderings~~ Smoothness Appearance of Fabrics after Repeated Home Launderings

130 Soil Release: Oily Stain Release Method

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

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

172 Colorfastness to Powdered Non-Chlorine Bleach in Home Laundering
 188 Colorfastness to Chlorine Sodium Hypochlorite Bleach in Home Laundering
 Evaluation Procedure No. 1 Gray Scale for Color Change
 Evaluation Procedure No. 2 Gray Scale for Staining
 Evaluation Procedure No. 3 AATCC Chromatic Transference Scale
~~2.3 Federal Standard:~~
 16CFR, Chapter II Consumer Product Safety Commission Subchapter D Flammable Fabrics Act Regulations
~~2.4 Military Standard:~~
 MIL-STD-105D Sampling Procedures and Tables for Inspection by Attributes Evaluation Procedure 8 AATCC 9-Step
Chromatic Transference Scale

NOTE 1—Reference to test methods in this 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 specification refer to the individual ASTM and AATCC methods and to Terminology~~

3.1.1 For all terminology related to Home Furnishings see Terminology D7023.

3.2 For definitions of all other textile terms see Terminology D123.

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

4. Specification Requirements

4.1 The properties of woven fabrics for napery and tablecloths for household and institutional uses shall conform to the specification requirements in Table 1.

5. Significance and Use

5.1 Upon agreement between the purchaser and the seller, fabrics intended for this end use should meet all of the requirements listed in Table 1 of this specification.

5.2 It is recognized that for purposes of fashion or aesthetics the ultimate consumer of articles made from these fabrics may find acceptable fabrics that do not conform to all of the requirements in Table 1. Therefore, one or more of the requirements listed in Table 1 may be modified upon agreement between the purchaser and the seller.

5.2.1 In such cases, any references to the specification shall specify that: “This fabric meets ASTM Specification D4111 except for the following characteristic(s).”

5.3 Where no prepurchase agreement has been reached between the purchaser and the seller, and in case of controversy, the requirements listed in Table 1 are intended to be used as a guide only. As noted in 5.2, ultimate consumer demands dictate varying performance parameters for any particular style of fabric.

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

6. Sampling

6.1 *Lot Sample*—As a lot sample for acceptance testing, take at random the number of rolls as directed in an applicable specification or other agreement between the purchaser and the ~~supplier, such as an agreement to use MIL-STD-105D~~ supplier.

6.2 *Laboratory Sample*—From each roll or piece in the lot sample, cut two laboratory samples the full width of the fabric and at least 375 mm (15 in.) along the selvage.

7. Test Methods (see Note 1)

7.1 *Breaking Strength (Load)*—~~Determine the dry-breaking strength (load) as directed in the grab test procedure of Test Methods D1682, using a constant-rate-of-traverse (CRT) tensile-testing machine with the speed of the pulling clamp at 305 ± 13 mm ($12 \pm \frac{1}{2}$ in.)/min.~~—Determine the breaking strength as directed in Test Method D5034, using a constant-rate-of-extension (CRE) tensile-testing machine.

NOTE 2—If preferred, the use of a ~~constant-rate-of-extension (CRE) constant-rate-of-traverse (CRT) tensile testing machine is permitted. The crosshead speed should be as agreed upon between the purchaser and the seller.~~ There may be no overall correlation between the results obtained with the CRT machine and the CRE machine, consequently, these two ~~breaking-load/breaking-force~~ breaking-load/breaking-force testers cannot be used interchangeably. In case of controversy, the ~~CRT machine~~ CRE method (Test Method D5034) shall prevail.

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

7.3 *Tear Strength*—Determine the tear strength as directed in Test Method ~~D2262~~ D1424.

NOTE 3—If preferred, the use of Test Methods ~~D1424 and~~ 3—If preferred, the use of Test Method D2261 is permitted with existing requirements as given in this specification. There may be no overall correlation between the results obtained with the tongue-tear ~~machines-method (Test Method D2261)~~ and the Elmendorf machine (D1424). Consequently, these tear testers cannot be used interchangeably. In case of controversy, Test Method ~~D2262~~ D1424 shall prevail.