Designation: D 3783 – 02

Standard Performance Specification for Woven Flat Lining Fabrics for Men's and Boys' Apparel[1]

This standard is issued under the fixed designation D 3783; 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 flat lining fabrics composed of any textile fiber or mixture of textile fibers for men's and boys' apparel.

1.2 This performance specification is not applicable to woven pile, woven fusible, fire-bonded fusible, sliver-knit pile, and sheepskin lining fabrics.

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

1.4 The following safety hazards caveat pertains only to the test method described in this specification: *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 Textiles[2]

D 434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam[2]

D 1336 Test Method for Distortion of Yarn in Woven Fabrics[2]

D 1424 Test Method for Tear Resistance of Woven Fabrics by Falling-Pendulum (Elmendorf) Apparatus[2]

D 5034 Test Method for Breaking Force and Elongation of Textile Fabrics (Grab Test)[3]

D 2261 Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single-Rip) Method (Constant-Rate-of-Extension Tensile Testing Machine)[2]

D 2262 Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine)[2]

D 2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics[2]

D 2905 Practice for Statements on Number of Specimens for Textiles[2]

2.2 *AATCC Test Methods:*[4]

8 Colorfastness to Crocking: AATCC Crockmeter Method

15 Colorfastness to Perspiration

16 Colorfastness to Light[3]

23 Colorfastness to Burnt Gas Fumes[3]

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

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

116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method

124 Appearance of Durable Press Fabrics after Repeated Home Launderings

132 Colorfastness to Drycleaning

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

172 Colorfastness to Non-Chlorine Bleach in Home Laundering

188 Colorfastness to Chlorine Bleach in Home Laundering

Evaluation Procedure 1 Gray Scale for Color Change

Evaluation Procedure 2 Gray Scale for Staining

Evaluation Procedure 3 AATCC Chromatic Transference Scale

2.3 *Federal Standards:*

16 CFR 1610 Standard for Flammability of Clothing Textiles[5]

16 CFR Chapter II—Consumer Product Safety Commission, Subchapter D-Flammable Fabrics Act Regulations[5]

2.4 *Military Standard:*

MIL-STD-105D Sampling Procedures and Tables for Inspection by Attributes[6]

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[1] This specification is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.61 on Apparel.

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[2] *Annual Book of ASTM Standards*, Vol 07.01.

[3] *Annual Book of ASTM Standards*, Vol 07.02.

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

[5] Available from Superintendent of Documents, Government Printing Office, Washington, DC 20402.

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

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 *lining fabric—for apparel*, a textile used to cover the inner side of garments.

3.2 For definitions of textile terms used in this specification refer to Terminology D 123 and the Technical Manual of the American Association of Textile Chemists and Colorists.[3] Definitions found in a dictionary of common terms are suitable for terms used in this specification.

4. Specification Requirements

4.1 The properties of flat woven lining fabrics for men's and boys' apparel shall conform to the specifications requirements in Table 1.

5. Significance and Use

5.1 Upon mutual agreement between the purchaser and the supplier, woven 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 by mutual agreement between the purchaser and the supplier.

5.2.1 In such cases, any references to the specification shall specify that: This fabric meets Specification D 3783 except for the following characteristic(s).

5.3 Where no prepurchase agreement has been reached between the purchaser and the supplier, 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 significance and uses of particular properties and test methods are discussed in the appropriate sections of the specified test methods.

TABLE 1 Specification Requirements

NOTE 1—Class in a, b, c 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)	111 N (25 lbf), min	7.1
Yarn slippage	6.3-mm (¼-in.) separation 67 N (at 15 lbf), min	7.2
Tear strength	6.7 N (1.5 lbf), min	7.3
Yarn distortion:		7.4
Satins	2.5 mm (0.10 in.), max	
All other	1 mm (0.05 in.), max	
Dimensional change:		
After five launderings	3 %, max	7.5.1
After three drycleanings	2 %, max	7.5.2
Colorfastness:		
Burnt gas fumes—2 cycles:		7.6.1
Shade change, original fabric	Class 4[A] min	
Shade change after one laundering or one drycleaning	Class 4[A] min	
Chlorine Bleach	Class 4[A] min	7.6.7
Non-Chlorine Bleach	Class 4[A] min	7.6.8
Laundering:		7.6.2
Shade change	Class 4[A] min	
Staining	Class 3[B] min	
Drycleaning:		7.6.3
Shade change	Class 4[A] min	
Crocking:		7.6.4
Dry	Class 4[C] min	
Wet	Class 3[C] min	
Perspiration:		7.6.5
Shade change	Class 4[A] min	
Staining	Class 4[B] min	
Light (10 AATCC FU) (xenon-arc)	Step 4[A] min	7.6.6
Fabric appearance (see 7.7.1.1)	DP 3.5[D] min	7.7
Flammability	Class 1 or Class 2	7.8

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

6. Sampling

6.1 *Acceptance Testing Lot*—Unless there is prior agreement consider as a lot for acceptance testing all material of a single item received as a single shipment.

6.2 *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 seller, such as an agreement to use MIL-STD-105D.

6.3 *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.

6.4 *Test Specimens*—Take the number of specimens directed in each of the applicable test methods. Perform the tests on the fabric as it will reach the customer. Any "partially finished" or "post-finish" fabrics should be processed in accordance with the fabric manufacturer's instructions.

6.5 If the applicable test method does not specify the number of specimens, use the procedures in Practice D 2905 to determine the number of specimens per laboratory sampling unit. Use (*1*) a reliable estimate of the variability of individual observations on similar materials in the user's laboratory, (*2*) a 95 % probability level, and (*3*) an allowable difference of 5 % of the average between the test results on laboratory sampling units and the average for the laboratory sampling unit. The average for a laboratory sampling unit is the average that would be obtained by applying the test method to all of the potential specimens from that laboratory sampling unit.

7. Test Methods (See Note 1)

7.1 *Breaking Force*—Determine the dry breaking force, in the standard atmosphere for testing textiles, as directed in Test Method D 5034, using a constant rate of traverse (CRT) tensile testing machine with the speed of the pulling clamp at 300 ± 10 mm (12 ± 0.5 in.)/min.

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

7.2 *Resistance to Yarn Slippage*—Determine the resistance to yarn slippage as directed in Method D 434.

NOTE 3—The precision of Test Method D 434 has not been established, and it may not be suitable for fabrics with low yarn counts.

7.3 *Tear Strength*—Determine the tear strength as directed in Test Method D 1424.

NOTE 4—If preferred, use of Test Method D 2261 or D 2262 is permitted with existing requirements as given in this standard. There may be no overall correlation between the results obtained with the tongue tear machine and with the Elmendorf machine. Consequently, these two tongue tear testers cannot be used interchangeably. In case of controversy, Test Method D 1424 shall prevail.

7.4 *Yarn Distortion*—Determine the yarn distortion as directed in Test Method D 1336.

7.5 *Dimensional Change*:

7.5.1 *Laundering*—Determine the maximum dimensional change after five launderings as directed in the applicable procedure in AATCC Test Method 135.

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

7.5.2 *Drycleaning*—Determine the maximum dimensional change after three drycleanings as directed in Test Method D 2724.

7.6 *Colorfastness*:

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

NOTE 5—Washing conditions shall be the same as those used in 7.5.1.1. Drycleaning conditions shall be the same as those used in 7.5.2.

7.6.2 *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.

7.6.3 *Drycleaning*—Determine colorfastness to drycleaning as directed in AATCC Test Method 132.

7.6.4 *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 or as agreed between the purchaser and the supplier.

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

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

NOTE 6—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.

7.6.7 *Colorfastness to Chlorine Bleach*—Determine colorfastness to chlorine bleach as directed in AATCC Test Method 188.

7.6.8 *Colorfastness to Non-Chlorine Bleach*—Determine colorfastness to non-chlorine bleach as directed in AATCC Test Method 172.

7.7 *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 between the purchaser and the supplier as specified in 7.5.1.1 for washable fabrics or after drycleaning as specified in 7.5.2 for drycleanable fabrics.

7.7.1 For fabrics not intended for use in durable press garments determine the fabric smoothness after pressing as specified in AATCC Test Method 96.

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

7.8 *Flammability*—The flammability requirements shall be as agreed between the purchaser and the supplier, provided they meet or exceed those of Part 1610of the Flammable Fabric Act Regulations.

8. Keywords

8.1 fabric; lining; performance; specification