Designation: ~~D3780 – 14~~ D3780 – 22

Standard Performance Specification for Men's and Boys' Woven Dress Suit Fabrics and Woven Sportswear Jacket, Slack, and Trouser Fabrics[1]

This standard is issued under the fixed designation D3780; 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 men's and boys' woven dress suit fabrics and woven sportswear jacket, slack, and trouser fabrics composed of any textile fiber or mixture of textile fibers.

1.2 This performance specification is not applicable to woven fabrics used for interlinings.

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

1.5 *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D434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam (Withdrawn 2003)[3]
D1424 Test Method for Tearing Strength of Fabrics by Falling-Pendulum (Elmendorf-Type) Apparatus
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Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine) (Withdrawn 1995)[3]
D2724 Test Method for Bond Strength of Bonded, Fused, and Laminated Apparel Fabrics
D2905 Practice for Statements on Number of Specimens for Textiles (Withdrawn 2008)[3]
D5034 Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
D7022 Terminology Relating to Apparel (Withdrawn 2022)[3]

[1] This performance 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] 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.

2.2 *AATCC Test Methods:*[4]
8TM8 Colorfastness to Crocking: Crockmeter Method
15TM15 Colorfastness to Perspiration
16.3TM16.3 Colorfastness to LightLight: Xenon Arc
23TM23 Colorfastness to Burnt Gas Fumes
61TM61 Colorfastness to Laundering: Accelerated
96TM96 Dimensional Changes in Commercial Laundering of Woven and Knitted Fabrics Except Wool
116TM116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method
119TM119 Color Change Due to Flat Abrasion (Frosting): Screen Wire Method
124TM124 Smoothness Appearance of Fabrics After Repeated Home Laundering
132TM132 Colorfastness to Drycleaning
135TM135 Dimensional Changes of Fabrics After Home Laundering
172TM172 Colorfastness to Powdered Non-Chlorine Bleach in Home Laundering
188TM188 Colorfastness to Sodium Hypochlorite Bleach in Home Laundering
Evaluation Procedure 1EP1 Gray Scale for Color Change
Evaluation Procedure 2EP2 Gray Scale for Staining
Evaluation Procedure 8EP8 AATCC 9–Step Chromatic Transference Scale
M11 A Glossary of AATCC Standard Terminology

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]

NOTE 1—Reference to test methods in this specification gives 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 For all terminology related to Apparel, see Terminology D7022.

3.1.1 The following terms are relevant to this standard: pressing and finishing.

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

3.3 For terms relating to chemical or colorfastness testing, refer to specific AATCC test methods or the glossary of AATCC Standard Terminology, or both.

4. Specification Requirements

4.1 The properties of fabrics for men's and boys' woven dress suits and woven sportswear jackets, slacks, and trousers shall conform to the specification 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.

[4] Available from the American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709; www.aatcc.org.
[5] Available from Superintendent of Documents, U.S. 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.

TABLE 1 Specification Requirements

NOTE 1—Grade in a, b, c, and SA 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. The numerical rating in Table 1 or a higher numerical rating is acceptable.

Characteristic	Requirements		Section
	Suit, Slack, Trouser	Jacket	
Breaking strength (load) (CRT):			7.1
Worsted count yarns	178 N (40 lbf), min	133 N (30 lbf), min	
Cotton count yarns	178 N (40 lbf), min	133 N (30 lbf), min	
Woolen run yarns	133 N (30 lbf), min	111 N (25 lbf), min	
Yarn slippage	6.3-mm (¼-in.) separation at 111 N (25 lbf), min	89 N (20 lbf), min	7.2
Tear strength	11 N (2.5 lbf), min	9 N (2 lbf)	7.3
Dimensional Change:			
Pressing and finishing (in each direction)	2 % max	2 % max	7.4.1
After five launderings (in each direction)	3 % max	3 % max	7.4.2
After three dry cleanings (in each direction)	2 % max	2 % max	7.4.3
Colorfastness:			
Burnt gas fumes—2 cycles:			
Shade change, original fabric	Grade 4[A] min	Grade 4[A] min	7.5.1
Shade change after one laundering or one dry cleaning	Grade 4[A] min	Grade 4[A] min	
Sodium Hypochlorite Bleach	Grade 4[A] min	Grade 4[A] min	7.5.8
Powdered Non-Chlorine Bleach	Grade 4[A] min	Grade 4[A] min	7.5.9
Laundering:[E]			
Shade change	Grade 4[A] min	Grade 4[A] min	7.5.2
Staining	Grade 3[B] min	Grade 3[B] min	
Dry cleaning:			
Shade change	Grade 4[A] min	Grade 4[A] min	7.5.3
Crocking:[E]			
Dry	Grade 4[C] min	Grade 4[C] min	7.5.4
Wet	Grade 3[C] min	Grade 3[C] min	
Perspiration:[E]			
Shade change	Grade 4[A] min	Grade 4[A] min	7.5.5
Staining	Grade 3[B] min	Grade 3[B] min	
~~Light (40 AATCC FU) (xenon-arc)~~	~~Grade 4[A] min~~	~~Grade 4[A] min~~	~~7.5.6~~
Light (40 AFUs) (xenon-arc)	Grade 4[A] min	Grade 4[A] min	7.5.6
Frosting	Grade 4[A] min	Grade 4[A] min	7.5.7
Fabric smoothness appearance (See 7.6.1)	SA 3.5[D] min	SA 3.5[D] min	7.6
Flammability	Class 1 or Class 2	Class 1 or Class 2	7.6

[A] AATCC Gray Scale for Color Change.
[B] AATCC Gray Scale for Staining.
[C] AATCC 9-Step Chromatic Transference Scale.
[D] For easy-care fabrics only.
[E] See Note 8.

5.2.1 In such cases, any references to the specification shall specify that: This fabric meets Specification D3780 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 use of particular properties and test methods are discussed in the appropriate sections of the specified test methods.

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 supplier, 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-finished" 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 D2905 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 Method (See Note 1)

7.1 *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 traverse (CRT) tensile testing machine with the speed of the pulling clamp at ~~300~~300 mm ± 10 mm ~~(12~~(12 in. ± 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 upon 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 Test Method D434.

NOTE 3—The precision of Test Method D434 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 D1424.

NOTE 4—If preferred, use of Test Methods D2261 or D2262 is permitted with existing requirements as given in this specification. 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 D1424 shall prevail.

7.4 *Dimensional Change:*

7.4.1 *Pressing and Finishing During Manufacturing*—Mark specimen(s) as directed in ~~Section 4 of AATCC Test Method 135.~~ AATCC TM135. Press and finish specimen(s) as agreed upon between the purchaser and the supplier with respect to time cycles, temperature, steam, vacuum, and mechanical pressure of the press head. Measure the specimen(s) and calculate the dimensional change as directed in ~~Section 5 of AATCC Test Method 135~~ AATCC TM135 (see Note 5).

NOTE 5—No standard test method is available for reproducing on a laboratory level the results of industrial press or finish treatments, or both, used in the manufacture of woven outerwear garments.[7]

7.4.1.1 If no agreement has been made between the purchaser and the supplier, press the specimen(s) using a flat-bed steam press as follows:

(1) Five seconds steam with head up.
(2) Five seconds dry hot press with head down ~~293~~293 °F to ~~303°F (145~~303 °F (145 °C to ~~151°C)~~151 °C) at the press.
(3) Five seconds vacuum, steam off, head down.
(4) Five seconds vacuum, steam off, head up.

7.4.2 *Laundering*—Determine the maximum dimensional change after five launderings as directed in the applicable procedure in AATCC ~~Test Method 135~~ TM135 (Note 6).

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

[7] The development of a standard test method has been referred to Subcommittee D13.59 on Fabric Test Methods, General.