



Designation: D 4232 – 01

Standard Performance Specification for Men's and Women's Dress and Vocational Career Apparel Fabrics¹

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1. Scope

1.1 This specification covers the performance requirements for woven fabrics for men's and women's dress and vocational career apparel.

1.2 This specification is not applicable to career apparel fabrics 3.1.1.2 that do not patently fit the categories in 3.1.1.1 and 3.1.2. Performance specifications for such fabrics should be as agreed to between the purchaser and the seller. This specification is not applicable to overcoat or topcoat uniform fabrics.

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

1.4 *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

- D 123 Terminology Relating to Textiles
- D 434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam
- D 1424 Test Method for Tear Strength of Fabrics by Falling-Pendulum Type (Elmendorf) Apparatus
- D 2261 Test Method for Tearing Strength of Fabrics by the Tongue (Single-Rip) Procedure (Constant-Rate-of-Extension Testing Machine)
- D 2262 Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single-Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine)³
- D 2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics

D 2905 Practice for Statements on Number of Specimens for Textiles

D 5034 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 Washing, Domestic; and Laundering, Commercial: Accelerated
- 116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method
- 124 Appearance of Durable Press Fabrics After Repeated Home Launderings
- 132 Colorfastness to Drycleaning
- 135 Dimensional Change in Automatic Home Laundering of Woven or Knit Fabrics
- 172 Colorfastness to Non-chlorine Bleach in Home Laundering
- 188 Colorfastness to Chlorine Bleach in Home Laundering

Evaluation Procedure 1 AATCC Gray Scale for Color Change

Evaluation Procedure 2 AATCC Gray Scale for Staining

Evaluation Procedure 3 AATCC Chromatic Transference Scale

2.3 Federal Standard:⁵

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

2.4 Military Standard:⁶

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

NOTE 1—Reference to test methods in this standard 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.

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 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 Discontinued; see 1994 *Annual Book of ASTM Standards*, Vol 07.01.

⁴ AATCC Technical Manual, 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.

3. Terminology

3.1 Definitions:

3.1.1 *career apparel*, *n.*—garments, usually of a specified design, for on-the-job wear by business or professional employees.

3.1.1.1 *career dress apparel*, *n.*—career apparel which is not generally subject to abusive wear and for which appearance is a more important attribute than durability.

(1) *Discussion*—Fabrics for career dress apparel are usually categorized as heavyweight, mediumweight, or lightweight. The uses of these fabrics vary with weight as follows:

Category	Mass (Weight)	Typical End-Uses
I—Heavy-weight	200 g/m ² (6.0 oz/yd ²) and above	Pants, suits, blazer, waiter-type jackets, vests, coveralls, etc.
II—Medium-weight	150 g/m ² (4.5 oz/yd ²) and above, but less than 200 g/m ² (6.0 oz/yd ²)	Pants, jackets, dresses, shirts and blouses, gowns, smocks, lab coats, etc.
III—Light-weight	Below 150 g/m ² (4.5 oz/yd ²)	Tops (shirts, blouses) and dresses

3.1.1.2 *career vocational apparel*, *n.*— career apparel which is generally subject to abusive wear and for which durability is a more important attribute than appearance.

(1) *Discussion*—Fabrics for career dress apparel are usually categorized as heavyweight, mediumweight, or lightweight. The uses of these fabrics vary with weight as follows:

Category	Mass (Weight)	Typical End-Uses
I— Heavy-weight	270 g/m ² (8.0 oz/yd ²) and above	Pants, jackets, lab coats, coveralls, etc.
II—Medium-weight	150 g/m ² (4.5 oz/yd ²) and above, but less than 270 g/m ² (8.0 oz/yd ²)	Shirts, smocks, aprons, lab coats, nurses dresses, etc.
III—Light-weight	Below 150 g/m ² (4.5 oz/yd ²)	Light duty shirts, blouses, dresses, smocks, etc.

3.2 For definitions of other textile terms used in this specification, refer to Terminology D 123.

3.3 Definitions found in a dictionary of common terms are suitable for terms used in this specification.

4. Specification Requirements

4.1 The properties of woven fabrics for men's and women's career apparel 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 where more critical requirements call for higher performance levels, 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. One or more of the requirements 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 ASTM Specification D 4232 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 uses and significance of particular properties and test methods are discussed in the appropriate sections of the specified test methods.

6. Sampling

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

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 Force*—Determine the dry breaking force 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) 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 the CRE machine, consequently, these two breaking load testers cannot be used interchangeably. In case of controversy, the CRT machine will prevail.

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

NOTE 3—The precision of Test Method D 434 is being established, and it may not be suitable for fabrics with a low number of ends and picks per inch.

7.3 *Tearing Strength*—Determine the tearing strength as directed in Test Method D 2262.

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

7.4 Dimensional Change:

7.4.1 *Pressing and Finishing During Garment Manufacturing*—Mark specimen(s) as directed in 4.4 of AATCC Test Method 135. Press and finish specimen(s) as agreed to by the purchaser and the supplier with respect to time, cycles, temperature, steam, vacuum, and mechanical pressure of the presshead. Measure the specimen(s) and calculate the dimensional change as directed in Sections 6 and 7 of AATCC Test Method 135.

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 according to the cycle in 10.1.4.1 through 10.1.4.5 of Test Methods D 2724.

7.4.2 *Laundering*—Determine the maximum dimensional change after 5 launderings as directed in the applicable procedure in AATCC Test Method 135 or as agreed to by buyer and supplier.