Designation: D4232 – 23

Standard Performance Specification for Woven Career Apparel Fabrics: Dress and Vocational[1]

This standard is issued under the fixed designation D4232; 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 the performance requirements for woven fabrics for career apparel: dress and vocational.

1.2 This performance specification is not applicable to career apparel fabrics that do not patently fit the category of Career Dress Apparel. Performance specifications for such fabrics should be as agreed to between the purchaser and the seller. This performance 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, health, and 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D434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam (Withdrawn 2003)[3]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Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine) (Withdrawn 1995)[3]

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

D7022 Terminology Relating to Apparel (Withdrawn 2022)[3]

2.2 *AATCC Test Methods:*[4]

TM8 Colorfastness to Crocking: Crockmeter

TM15 Colorfastness to Perspiration

TM16.3 Colorfastness to Light: Xenon-Arc

TM23 Colorfastness to Burnt Gas Fumes

TM61 Colorfastness to Laundering: Accelerated

TM109 Colorfastness to Ozone in the Atmosphere under Low Humidities

TM116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method

TM124 Smoothness Appearance of Fabrics After Repeated Home Laundering

TM132 Colorfastness to Drycleaning

TM135 Dimensional Change of Fabrics after Home Laundering

TM158 Dimensional Changes on Dry Cleaning in Perchloroethylene: Machine Method

TM172 Colorfastness to Powdered Non-chlorine Bleach in Home Laundering

TM188 Colorfastness to Sodium Hypochlorite Bleach in Home Laundering

EP1 AATCC Gray Scale for Color Change

EP2 AATCC Gray Scale for Staining

EP8 AATCC 9-Step Chromatic Transference Scale

M11 A Glossary of AATCC Standard Terminology

2.3 *Federal Standard:*[5]

CFR 1610 Chapter II-Consumer Product Safety Commission Subchapter D-Flammable Fabrics Act Regulations

[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.

[4] AATCC Technical Manual, 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 Superintendent of Documents, Government Printing Office, Washington, DC 20402.

2.4 *ANSI Standard:*[6]

ANSI/ASQ Z1.4 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.

3. Terminology

3.1 For all terminology related to Apparel, see Terminology D7022.

3.1.1 The following terms are relevant to this standard: career apparel.

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 woven fabrics for men's and women's career apparel shall conform to the specification requirements in Table 1.

[6] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

TABLE 1 Specification Requirements

NOTE 1—Grade in colorfastness is based on a numerical scale of 5 for negligible color change or color transfer rating, and to 1 for very severe color change or color transfer, or durable press rating. A grade for fabric smoothness requirements is based on SA-5 for a very smooth, pressed, finished appearance to a grade of SA-1 crumpled, creased and severely wrinkled appearance.

Characteristics	Career Dress Apparel Fabric Requirements	Career Vocational Apparel Fabric Requirements	Section
Breaking strength (load) (CRE):			
Category I	267 N (60 lbf), min	312 N (70 lbf), min	7.1
Category II	178 N (40 lbf), min	222 N (50 lbf), min	
Category III	156 N (35 lbf), min	178 N (40 lbf), min	
Yarn slippage, 6-mm, (¼-in.) separation:			
Category I	111 N (25 lbf), min	111 N (25 lbf), min	7.2
Category II	89 N (20 lbf), min	89 N (20 lbf), min	
Category III	67 N (15 lbf), min	67 N (15 lbf), min	
Tongue tear strength:			
Category I	20 N (4.5 lbf), min	27 N (6.0 lbf), min	7.3
Category II	16 N (3.5 lbf), min	18 N (4.0 lbf), min	
Category III	11 N (2.5 lbf), min	11 N (2.5 lbf), min	
Dimensional stability:			
Pressing and finishing	2 % shrink, 0.5 % gain, max	2 % shrink, 0.5 % gain, max	7.4.1
After 5 washes	±2.5 % max	±2.5 % max	7.4.2
After 3 drycleanings	±2.5 % max	±2.5 % max	7.4.3
Fabric Smoothness Appearance (see 7.5.1):			
Category I	SA, 3.5 min	SA, 3.0 min	7.5
Category II	SA, 3.5 min	SA, 3.0 min	
Category III	SA, 3.0 min	SA, 3.0 min	
Flammability	Class 1	Class 1	7.6
Colorfastness to:			
Laundering:[D]			
Shade change	Grade 4, min[A]	Grade 4, min[A]	7.7.1
Staining	Grade 3, min[B]	Grade 3, min[B]	
Drycleaning			
Shade change	Grade 4, min[A]	Grade 4, min[A]	7.7.2
Crocking:[D]			
Dry	Grade 4, min[C]	Grade 4, min[C]	7.7.3
Wet	Grade 3, min[C]	Grade 3, min[C]	
Burnt gas fumes—2 cycles			
Shade change, original fabric	Grade 4, min[A]	Grade 4, min[A]	7.7.4
Shade change, after one laundering or one drycleaning	Grade 4, min[A]	Grade 4, min[A]	
Light (xenon-arc)			
Outdoor (40 AFUs)	Grade 4, min[A]	Grade 4, min[A]	7.7.5
Indoor (20 AFUs)	Grade 4, min[A]	Grade 4, min[A]	
Perspiration:[D]			
Shade change	Grade 4, min[A]	Grade 4, min[A]	7.7.6
Staining	Grade 3, min[B]	Grade 3, min[B]	
Ozone—2 cycles	Grade 4[A] , min	Grade 4[A] , min	7.7.7
Sodium Hypochlorite Bleach	Grade 4[A] , min	Grade 4[A] , min	7.7.8
Powdered Non-chlorine Bleach	Grade 4[A] , min	Grade 4[A] , min	7.7.9

[A] AATCC Gray Scale for Color Change.
[B] AATCC Gray Scale for Staining.
[C] AATCC 9-Step Chromatic Transference Scale.
[D] See Note 7.