



Designation: ~~D4119~~—~~14~~ D4119 – 22

Standard Performance Specification for Men's and Boys' Knitted Dress Shirt Fabrics¹

This standard is issued under the fixed designation D4119; 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 knitted fabrics comprised of any textile fiber or mixture of fibers, used in men's and boy's dress shirts.

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

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~~ 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](#)
- [D2594 Test Method for Stretch Properties of Knitted Fabrics Having Low Power](#)
- [D2724 Test Method for Bond Strength of Bonded, Fused, and Laminated Apparel Fabrics](#)
- [D3786 Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method](#)
- [D3787 Test Method for Bursting Strength of Textiles—Constant-Rate-of-Traverse \(CRT\) Ball Burst Test](#)
- [D7022 Terminology Relating to Apparel \(Withdrawn 2022\)³](#)

2.2 AATCC Methods:⁴

- [8TM8 Colorfastness to Crocking: Crockmeter Method](#)
- [15TM15 Colorfastness to Perspiration](#)
- [16.3TM16.3 Colorfastness to Light: Xenon-Arc](#)
- [23TM23 Colorfastness to Burnt Gas Fumes](#)
- [61TM61 Colorfastness to Laundering: Accelerated](#)
- [96TM96 Dimensional Changes in Laundering of Woven and Knitted Textiles Except Wool](#)

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. Current edition approved Feb. 1, 2014; Nov. 1, 2022. Published March 2014; November 2022. Originally approved in 1982. Last previous edition approved in 2008 as ~~D4119 – 04~~D4119 – 14 (2008); DOI: ~~10.1520/D4119-14~~10.1520/D4119-22.

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>.

- ~~H6~~TM116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method
- ~~I24~~TM124 Smoothness Appearance of Fabrics after Repeated Home Launderings
- ~~I32~~TM132 Colorfastness to Drycleaning
- ~~I35~~TM135 Dimensional Changes of Fabrics after Home Laundering
- ~~I72~~TM172 Colorfastness to Powdered Non-chlorine Bleach in Home Laundering
- ~~I88~~TM188 Colorfastness to Sodium Hypochlorite Bleach in Home Laundering
- ~~Evaluation Procedure No. 1~~EP1 Gray Scale For Color Change
- ~~Evaluation Procedure No. 2~~EP2 Gray Scale for Staining
- ~~Evaluation Procedure No. 8~~EP8 AATCC 9-Step Chromatic Transference Scale
- M11 A Glossary of AATCC Standard Terminology

2.3 *Federal Standard*.⁵

16 CFR, CFR 1610, 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 performance 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 For all terminology related to Apparel, see Terminology D7022.

3.1.1 The following ~~term~~ terms are relevant to this standard: dimensional change; change; 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 method, or the Glossary of AATCC Standard Terminology.

3.4 Definitions of terms found in a dictionary of common terms are suitable for this performance specification.

3.5 *Definitions of Terms Specific to This Standard:*

3.5.1 ~~pressing and finishing~~—this term takes into account all of the industrial ~~pressing and finishing treatments used in garment production.~~

NOTE 2—No method is available for reproducing on a laboratory level the results of industrial ~~press or finishing treatments, or both, used in the manufacture of garments.~~

4. Specification Requirements

4.1 The properties of fabrics for men’s and boy’s knitted dress shirts 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 performance 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 D4119 except for the following characteristic(s).”

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.

TABLE 1 Specification Requirements

NOTE 1—Grade in a,b,c and SA is based on a numerical scale of 5 for negligible or no color change, color transfer, or wrinkle to 1 for very severe color change, color transfer, or wrinkle. The numerical rating in **Table 1** or a higher numerical rating is acceptable.

Characteristic	Requirements	Section
<i>Bursting strength (load)</i> (ball burst)	222 N (50 lbf)	7.1
<i>Dimensional change:</i>		
Pressing and finishing	2 % max	7.2.1
After 5 launderings (see 7.2.2.2 if shrinkage exceeds 3%)	3 % max	7.2.2
After 3 drycleanings	3 % max	7.2.3
Growth	3 % max	7.2.4
<i>Colorfastness:</i>		
Burnt gas fumes—2 cycles:		
Shade change, original fabric	Grade 4 ^A , min	7.3.1
Shade change after 1 laundering	Grade 4 ^A , min	
or		
1 drycleaning		
<i>Laundering:</i> ^E		
Shade change	Grade 4 ^A , min	7.3.2
Staining	Grade 3 ^B , min	
<i>Drycleaning:</i>		
Shade change	Grade 4 ^A , min	7.3.3
<i>Crocking:</i> ^E		
Dry	Grade 4 ^C , min	7.3.4
Wet	Grade 3 ^C , min	
<i>Perspiration:</i> ^E		
Shade change	Grade 4 ^A , min	7.3.5
Staining	Grade 3 ^B , min	
—Light (20 AATCC FU) (xenon-arc)	Grade 4 ^A , min	7.3.6
—Light (20 AFUs) (xenon-arc)	Grade 4 ^A , min	7.3.6
Sodium Hypochlorite Bleach	Grade 4 ^A , min	7.3.7
Powdered Non-Chlorine Bleach	Grade 4 ^A , min	7.3.8
<i>Fabric smoothness appearance</i> (see 7.4.1)	SA 3.5 ^D , min	7.4
<i>Flammability</i>	Pass	7.5
<i>Fabric smoothness appearance</i> (see 7.4.1)	SA 3.5 ^D , min	7.4
<i>Flammability</i>	Class 1	7.5

^A AATCC Gray Scale for Color Change.

^B AATCC Gray Scale for Staining.

^C AATCC 9-Step Chromatic Transference Scale.

^D For durable press fabrics only.

^E See **Note 8**.

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.

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 Method (See **Note 1**)

7.1 *Bursting Strength*—Determine the bursting strength, in the standard atmosphere for testing textiles, as directed in Test Method