



Standard Performance Specification for Knitted Necktie and Scarf Fabrics¹

This standard is issued under the fixed designation D 4035; 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 necktie and scarf fabrics composed of any textile fiber or mixture of textile fibers.

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

1.3 The following precautionary statement pertains only to the test methods portion, Section 7, of 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 Textiles²
- D 2594 Test Methods for Stretch Properties of Knitted Fabrics Having Low Power²
- D 2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics²
- D 2905 Practice for Statements on Number of Specimens for Textiles²
- D 3786 Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics—Diaphragm Bursting Strength Tester Method³
- D 3787 Test Method for Bursting Strength of Knitted Goods—Constant-Rate-of-Traverse (CRT) Ball Burst Test³

2.2 AATCC Methods:⁴

- 8-1977 Colorfastness to Crocking: AATCC Crockmeter Method
- 15-1979 Colorfastness to Perspiration
- 16-1977 Colorfastness to Light
- 23-1975 Colorfastness to Burnt Gas Fumes
- 61-1975 Colorfastness to Washing, Domestic, and Launder-

- ing, Commercial: Accelerated
- 96-1975 Dimensional Changes in Laundering of Woven and Knitted Textiles Except Wool
- 116-1977 Colorfastness to Crocking: Rotary Vertical Crockmeter Method
- 124-1978 Appearance of Durable Press Fabrics After Repeated Home Launderings
- 132-1977 Colorfastness to Drycleaning
- 135-1978 Dimensional Changes in Automatic Home Launderings of Durable Press Woven of Knit Fabrics 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 Standard:⁵
- 16 CFR 1610—Standard for Flammability of Clothing Textiles

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 *necktie*—a decorative band of fabric worn around the neck and tied in a knot or a bow.
- 3.1.2 *scarf*—*in apparel*, an oblong or square piece of cloth worn for warmth or as a decorative item.
- 3.2 For definitions of textile terms used in this specification, refer to the individual ASTM and AATCC test methods and to Terminology D 123.

4. Specification Requirements

4.1 The properties of fabrics for neckties and scarfs shall conform to the specification requirements in Table 1.

5. Significance and Use

5.1 Upon mutual 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 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

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

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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 American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

TABLE 1 Specification Requirements

NOTE 1—Class for colorfastness and DP rating 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
Bursting strength (load) (ball burst)	50 lbf (222 N)	7.1
Dimensional change:		
Pressing and finishing	2 % max	7.2.1
After five launderings	5 % max	7.2.2
After three dry cleanings	3 % max	7.2.3
Growth	3 % max	7.2.4
Colorfastness:		
Burnt gas fumes, 2 cycles:		7.3.1
Shade change, original fabric	Class 4 ^A min	
Shade change after one laundering or one dry cleaning	Class 4 ^A min	
Laundering:		7.3.2
Shade change	Class 4 ^A min	
Staining	Class 3 ^B min	
Drycleaning:		7.3.3
Shade change	Class 4 ^A min	
Crocking:		7.3.4
Dry	Class 4 ^C min	
Wet	Class 3 ^C min	
Perspiration		7.3.5
Shade change	Class 4 ^A min	
Staining	Class 3 ^B min	
Light (40 AATCC FU) (xenon-arc)	Step 4 ^A min	7.3.6
Fabric appearance (see 7.4.1.1)	DP 3.5 ^D min	7.4
Flammability	Class 1 or Class 2	7.5

^A AATCC Gray Scale for Color Change.

^B AATCC Gray Scale for Staining.

^C AATCC Chromatic Transference Scale.

^D For durable press fabrics only.

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 seller.

5.2.1 In such cases, any references to the specification shall specify that: “This fabric meets ASTM Specification D 4035 except for the following characteristic(s).”

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 significance and use of particular properties and test methods are discussed in the appropriate sections of the specified test methods.

6. Sampling

6.1 Tests shall be performed on the fabric as it will reach the consumer. Any “partially finished” or “post-finished” fabrics should first be processed in accordance with the fabric manufacturer’s instructions.

6.2 Unless otherwise agreed upon, as when specified in an applicable material specification, take the number of specimens directed in each of the applicable test methods.

6.2.1 If there has been no prior agreement and the test method does not specify the number of specimens, use the procedures in Practice D 2905 to determine the number of specimens, such that the user may expect at the 95 % probability level that the test result is no more than 5 % of the

average above or below the lot average (that is, the average that would be obtained by applying this method to the entire lot) when using a reliable estimate of variability of individual observations on similar materials in the user’s laboratory under conditions of single-operator precision.

7. Test Methods (see Note 1)

7.1 *Bursting Strength*—Determine the bursting strength, in the standard atmosphere for testing textiles, as directed in Test Method D 3786 or Test Method D 3787.

NOTE 2—There is no overall correlation between the results obtained with the CRT machine equipped with a bursting attachment and the diaphragm bursting tester. Consequently, these two bursting testers cannot be used interchangeably. In case of controversy, the CRT machine equipped with a bursting attachment method shall prevail.

NOTE 3—The precision of the ball burst method using the CRT machine equipped with a bursting attachment and the precision of the diaphragm bursting tester method are being established by Subcommittee D13.59. The methods are accordingly not recommended for acceptance testing unless preceded by an interlaboratory check test in the laboratory of the purchaser and the laboratory of the seller using randomized replicate specimens of the material to be evaluated.

7.2 Dimensional Change:

7.2.1 *Pressing and Finishing During Manufacturing*⁶—Mark specimen(s) as directed in 4.5 of AATCC Method 135. Press and finish specimen(s) as agreed upon between the purchaser and the seller 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 Sections 6 and 7 of AATCC Method 135.

7.2.1.1 If no agreement has been made between the purchaser and the seller, 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.

7.2.2 *Laundering*—Determine the maximum dimensional change after five launderings as directed in the applicable procedure in AATCC Method 135-1978 or as agreed upon between the buyer and the seller (Note 4 and Note 5).

7.2.2.1 The wash conditions and drying procedure shall be as specified by the seller.

7.2.3 *Dry-cleaning*—Determine the maximum dimensional change after three dry cleanings in accordance with Section 10.1.1 through 10.1.5 of Test Methods D 2724 (Note 4 and Note 5).

7.2.4 *Growth*—Determine the growth of the fabric as directed in Test Methods D 2594.

NOTE 4—Launderable fabrics are expected to be dry-cleanable except where all or part of the fabric is not dry-cleanable and is so labeled. For example, the fabric could contain a functional finish soluble in the solvent, or the fiber could be degraded by the solvent, which would be the case with poly(vinyl chloride) fiber. Goods labeled “Dry-cleanable” are to be dry-cleaned only.

NOTE 5—Specimens prepared for 7.2.1 may be used for 7.2.2 and 7.2.3 as desired. When this is done the dimensional change due to laundering or drycleaning is calculated using Eq 1. The dimensional change to pressing and finishing is determined on the fabric as it will reach the user. It is not

⁶ The development of a standard method has been referred to Subcommittee D13.59 on Fabric Test Methods, General.

additive to the dimensional change to laundering or drycleaning of the fabric as it will reach the consumer (see 6.1).

$$\text{Percent Dimensional Change} = 100(D_1 - D_2)/D_2 \quad (1)$$

where:

D_1 = measurement after laundering or dry-cleaning, and

D_2 = measurement after pressing and finishing.

7.3 Colorfastness:

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

NOTE 6—Washing conditions shall be the same as those used in 7.2.2.1. Dry-cleaning conditions shall be the same as those used in 7.2.3.

7.3.2 *Laundering*—Determine the colorfastness to laundering as directed in the applicable procedure of AATCC Method 61-1975. The test conditions shall be as specified by the seller (Note 4).

7.3.3 *Dry cleaning*—Determine colorfastness to dry cleaning as directed in AATCC Method 132 (Note 4).

7.3.4 *Crocking*—Determine colorfastness to dry and wet crocking as directed in AATCC Method 8 for solid shades and AATCC Method 116 for prints or as agreed upon between the purchaser and the seller.

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

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

NOTE 7—There are distinct differences in spectral distribution between the various types of machines listed in AATCC 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.

7.4 *Fabric Appearance*—Determine the fabric appearance as directed in AATCC Method 124 after laundering using the wash-and-wear cycle or the normal cycle as agreed upon between the purchaser and the seller, as specified in 7.2.2.1 for washable fabrics or as specified in 7.2.3 for dry-cleanable fabrics (see Note 4).

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

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

7.5 *Flammability*—The flammability requirements shall be as agreed upon between the purchaser and the seller, except when regulated by applicable Government mandatory standard (see section 2.3).

8. Keywords

8.1 necktie

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