Designation: D4847 – 02 (Reapproved 2008)

Standard Performance Specification for Woven Awning and Canopy Fabrics[1]

This standard is issued under the fixed designation D4847; 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 woven awning and canopy fabrics composed of any textile fiber or mixture of fibers.

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

1.3 The following safety hazards caveat pertains only to the test methods 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 and health practices and determine the applicability of regulatory limitations prior to use.*

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D434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam (Withdrawn 2003)[3]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

D5034 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

16 Colorfastness to Light

22 Water Repellency: Spray Test

23 Colorfastness to Burnt Gas Fumes

35 Water Resistance: Rain Test

116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method

129 Colorfastness to Ozone in the Atmosphere under High Humidities

138 Shampooing: Washing of Textile Floor Coverings

Evaluation Procedure 1 Gray Scale for Color Change

Evaluation Procedure 2 Gray Scale for Staining

Evaluation Procedure 9 Step Chromatic Transference Scale

NOTE 1—References 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 shall prevail.

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of textile terms used in this specification, refer to the individual ASTM and AATCC test methods, and to Terminology D123.

4. Specification Requirements

4.1 The properties of woven awning and canopy fabrics shall conform to the specification requirements listed in Table 1.

5. Significance and Use

5.1 Fabrics intended for this end-use should meet all of the requirements listed in Table 1.

5.2 It should be recognized that fabrics can be produced with an almost infinite number of combinations of construction variables (for example, type of fibers, percentage of fibers, yarn twist, yarn number, warp and pick count, chemical and mechanical finished.) Additionally, fashion or aesthetics dictate that the ultimate consumer may find acceptable articles made from fabrics that do not conform to all of the requirements in Table 1.

5.2.1 Hence, no single performance specification can possibly apply to all the various fabrics that could be utilized for this end-use.

5.3 The uses and significance of particular properties and test methods are discussed in the appropriate sections of the specified test methods.

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[1] This performance specification is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.63 on Home Furnishings.

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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] Available from American Association of Textile Chemists and Colorists (AATCC), P.O. Box 12215, Research Triangle Park, NC 27709, http://www.aatcc.org.

TABLE 1 Specification Requirements

NOTE 1—Class in a, b, and SA. rating is based on a numerical scale of 5 for no color change, color transfer, or wrinkle, to 1 for severe color change, color transfer, or wrinkle.

Characteristic	Requirements	Section
Breaking Strength (Load)	660 N (150 lbf), min	6.1
Yarn Slippage	6 mm (¼ in.) separation at 67 N (15 lbf)	6.2
Tear Strength	44 N (10 lbf) min	6.3
Dimensional Change:	3 % max	6.4
Colorfastness:		
Burnt Gas Fumes-2 cycles	Grade 4[A] min	6.5.1
Shade Change After One Laundering	Grade 4[A] min	6.5.1
Crocking		
Dry	Grade 4[B] min	6.5.2
Wet	Grade 3[B] min	6.5.2
Light (160 AATCC SFU)	Grade 4[A] min	6.5.3
Ozone—1 cycle	Grade 4[A] min	6.5.4
Water Resistance		6.6
Categories based on minimum time for 1-g (Original and After One Laundering)		
2 ft (600 mm)	30 s shower	
2 ft (600 mm)	2 min rain	
3 ft (915 mm)	5 min storm	
Water Repellency		6.7
Smooth textured fabrics		
Original	90 min	
After laundering	70 min	
Rough textured fabrics		
Original	80 min	
After laundering	70 min	
Flammability	Pass	6.8

[A] AATCC Gray Scale For Color Change.
[B] AATCC 9–Step Chromatic Transference Scale.

6. Test Methods (see Note 1)

6.1 *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 extension (CRE) tensile testing

6.2 *Resistance to Yarn Slippage*—Determine the resistance to yarn slippage as directed in Test Method D434.

NOTE 2—The precision of Test Method D434 has not been established, and it may not be suitable for fabrics with low yarn counts in terms of ends and picks.

6.3 *Tear Strength*—Determine the tear strength as directed in Test Method D1424.

6.4 *Dimensional Change*—Determine the maximum dimensional change after five cleanings, as directed in AATCC Test Method 138.

6.5 *Colorfastness:*

6.5.1 *Burnt Gas Fumes*—Determine the colorfastness to burnt gas fumes on the original fabric, and after one laundering or one drycleaning, as directed in AATCC Test Method 23.

6.5.2 *Crocking*—Determine the colorfastness to dry and wet crocking as directed in AATCC Test Method 8 or AATCC Test Method 116, or as agreed to by the purchaser and the supplier. In case of controversy, AATCC Test Method 8 shall prevail.

6.5.3 *Light*—Determine the colorfastness to light as directed in AATCC Test Method 16.

NOTE 3—There are distinct differences in spectral distribution between the various types of machines listed in AATCC Test 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.

6.5.4 *Ozone*—Determine the colorfastness to ozone as directed in AATCC Test Method 129.

6.6 *Water Resistance (Rain Test)*—Determine the water resistance (rain test) on the original fabric, and after one laundering, as directed in AATCC Test Method 35.

6.7 *Water Repellency*—Determine the water repellency (spray test) on the original fabric, and after one laundering, as directed in AATCC Test Method 22.

6.8 *Flammability*—The flammability requirements shall be agreed upon by the purchaser and supplier, except when regulated by applicable government mandatory standards.

7. Keywords

7.1 fabric; performance; specification