Designation: D5432 – 12

Standard Performance Specification for Blanket Products for Institutional and Household Use[1]

This standard is issued under the fixed designation D5432; 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 specification covers the evaluation of specific performance characteristics of importance in thermal woven, conventional woven, flocked, nonwoven, and knitted blanket products for use in institutional and household environments.

1.2 This specification may be used by mutual agreement between the purchaser and the supplier to establish purchasing specification requirements.

1.3 The requirements in Table 1 apply to the length and width directions for those properties where fabric direction is pertinent.

1.4 This specification does not include requirements for electric blankets. Electric blankets are specified under UL 964 requirements dictated by the Underwriter's Laboratories.

1.5 *This standard does not purport to address all of the safety problems, 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
D2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics
D2905 Practice for Statements on Number of Specimens for Textiles (Withdrawn 2008)[3]
D3136 Terminology Relating to Care Labeling for Apparel, Textile, Home Furnishing, and Leather Products
D3786 Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method
D4151 Test Method for Flammability of Blankets
D5034 Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
D6797 Test Method for Bursting Strength of Fabrics Constant-Rate-of-Extension (CRE) Ball Burst Test
D7023 Terminology Relating to Home Furnishings

2.2 *AATCC Methods:*[4]

8 Colorfastness to Crocking: Crockmeter Method
16 Option 3 Colorfastness to Light: Xenon-Arc Lamp, Continuous Light
61 Colorfastness to Laundering: Accelerated
88B Smoothness of Seams in Fabrics after Repeated Home Laundering
96 Dimensional Changes in Commercial Laundering of Woven and Knitted Fabrics Except Wool
97 Extractable Content of Textiles
116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method
132 Colorfastness to Drycleaning
135 Dimensional Changes of Fabrics after Home Laundering
Evaluation Procedure 1 Gray Scale for Color Change
Evaluation Procedure 2 Gray Scale for Staining
Evaluation Procedure 8 AATCC 9-StepChromatic Transference Scale

2.3 *UL Standard:*[5]

UL 964 Electrically Heating Bedding

NOTE 1—Reference to test methods in this specification give only the pertinent part of the designation of ASTM, AATCC, or other test methods. The current edition of each test method shall prevail.

3. Terminology

3.1 *Definitions:*

3.1.1 For all terminology related to Home Furnishings see Terminology D7023.

3.1.2 The following terms are relevant to this standard: blanket, *for bedding*.

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

Current edition approved Feb. 1, 2012. Published March 2012. Originally approved in 1993. Last previous edition approved in 2000 as D5432 - 93 (2000)ε1 which was withdrawn October 2009 and reinstated in February 2012. DOI: 10.1520/D5432-12.

[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.

[5] Available from Underwriter's Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062-0296.

TABLE 1 Specification Requirements

Characteristic	Requirements		
	Knits/Flock	Woven/Nonwoven	Section
Breaking Force (CRT method)[A] each direction	. . .	89 N (20 lbf) min	7.1.1
Bursting force, (ball burst)[A]	345 kpa (50 psi) min		7.1.2
Dimensional change:			
After 5 launderings each direction			7.2.1
Wool (50 % or more)	6.0 max	6.0 max	
Cotton	5.0 max	5.0 max	
All others	3.5 max	3.5 max	
After 3 drycleanings each direction			7.2.3
All fabrics	3.5 max	3.5 max	
Colorfastness:[B]			
Laundering:			7.3.1
Shade Change	Grade 4[C] min	Grade 4[C] min	
Staining	Grade 3[D] min	Grade 3[D] min	
Drycleaning			7.3.2
Shade Change	Grade 4[C] min	Grade 4[C] min	
Crocking:			7.3.3
Dry	Grade 4[E] min	Grade 4[E] min	
Wet	Grade 3[E] min	Grade 3[E] min	
Light (20 AATCC AFU, xenon-arc[A])	Step 4[C] min	Step 4[C] min	7.3.4
Flammability	Class I	Class I	7.4
Laundered Appearance	Acceptable[F]	Acceptable[F]	7.5.1

[A]There is more than one standard method that can be used to measure breaking force, bursting force, and lightfastness. These methods cannot be used interchangeably since there may be no overall correlation between them (see Notes 2-5, and 8).
[B]Grade for color change and color transfer is based on a numerical scale of 5 for negligible or no color change or color transfer to 1 for severe color change or color transfer. The numerical rating in Table 1 or higher is acceptable.
[C]AATCC Gray Scale for Color Change.
[D]AATCC Gray Scale for Staining.
[E]AATCC 9-Step Chromatic Transference Scale.
[F]As agreed upon between the purchaser and the supplier.

3.1.3 For definitions of all other textile terms see Terminology D123.

4. Significance and Use

4.1 Upon mutual agreement between the purchaser and the supplier, woven products intended for this end use should meet all of the requirements listed in Table 1 of this specification.

4.2 It is recognized that for purposes of fashion or aesthetics the ultimate consumer of articles made from these fabrics may find acceptable products 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 by mutual agreement between the purchaser and the supplier.

4.2.1 In such cases, any references to the specification shall specify that: This product meets Specification D5432 except for the following characteristic(s).

4.3 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 4.2, ultimate consumer demands dictate varying performance parameters for any particular style.

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

5. Sampling

5.1 *Acceptance Testing Lot*—Unless there is prior agreement, consider as a lot for acceptance testing all material of a single item as a single shipment.

5.2 *Lot Samples and Laboratory Samples*—For acceptance testing, take lot samples and laboratory samples as directed in each of the applicable test methods.

5.3 *Specimens*—Take the number of specimens directed in each of the applicable test methods. Perform the tests on the product as it reaches the customer. Any "partially finished" or "post-finish" fabrics should be processed in accordance with the fabric manufacturer's instructions.

5.4 If the applicable test method does not specify the number of specimens, use the procedures in Practice D2905 to determine the number of specimens per laboratory sample unit.

5.4.1 Use a reliable estimate of the variability of individual observations on similar materials in the user's laboratory,

5.4.2 A95 % probability level, and

5.4.3 An allowable difference of 5 % of the average between the test results on laboratory sampling units and the average for the laboratory sampling unit. The average for a laboratory sampling unit is the average that would be obtained by applying the test method to all of the potential specimens from that laboratory sampling unit.

6. Specification Requirements

6.1 *Fabrics*—The properties of fabrics for institutional and household conventional woven, thermal woven, flocked, nonwoven, and knitted blankets shall conform to the specification requirements in Table 1.

6.2 *Product*—The properties to be evaluated and the acceptance criteria assigned to these areas shall be set by mutual agreement between the purchaser and the supplier.

7. Testing For Household and Institutional Use

7.1 *Test Methods: Fabric*—The physical and colorfastness properties of the fabric in the products shall be evaluated as directed as follows:

7.1.1 *Breaking Strength (Woven and Nonwoven Fabrics Only)*—Determine the breaking strength as directed in Test Method D5034, using a constant-rate-of extension (CRE) tensile testing machine.

NOTE 2—If preferred, a constant-rate-of-traverse (CRT) tensile testing machine may be used. There may be no overall correlation between the results obtained with the CRT machine and with the CRE machine. Consequently, these two breaking load testers cannot be used interchangeably. In case of controversy, the CRE method (Test Method D5034) shall prevail.

7.1.2 *Bursting Strength (Knit and Flocked Fabrics Only)*—Determine the bursting strength in the standard atmosphere for testing textiles as directed in Test Method D3786 or Test Method D6797 as agreed upon between the purchaser and seller.

NOTE 3—There is no overall correlation between the results obtained with the CRE 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 motor-driven diaphragm tester method (Test Method D3786) shall prevail.

7.1.3 *Nonfibrous Material*—Determine the nonfibrous material as directed in AATCC Method 97.

NOTE 4—Determine only the water-soluble and enzyme-extractable material.

7.2 *Fabrication:*

7.2.1 *Dimensional Change*—Determine the maximum dimensional change after five launderings following permanently attached care label instructions, or as directed in AATCC Method 135 for household use, or AATCC Method 96 for institutional use, or ASTM Method D2724 for drycleaning use as agreed upon between the purchaser and the supplier.

7.2.2 The wash conditions and drying procedure shall be as specified by the seller when using AATCC Method 135 for household products or AATCC Method 96 for institutional products.

7.2.3 The drycleaning procedure shall be as specified by the supplier when using ASTM D2724 – 72 as directed in 10.1.1 to 10.1.4 with the exclusion of pressing.

NOTE 5—The method in 7.3.2 is a modification of the method used in 10.1.1 to 10.1.4 of Methods D2724 – 72. The precision and accuracy have not been established. The method is not recommended for acceptance testing unless preceded by an interlaboratory check test in the laboratory of the purchaser and the laboratory of the supplier using randomized replicate specimens of the type of material to be evaluated.

7.3 *Colorfastness:*

7.3.1 *Laundering*—Determine the colorfastness to laundering as directed in AATCC Method 61. The test conditions shall be agreed upon between the purchaser and the supplier.

7.3.2 *Drycleaning*—Determine colorfastness to drycleaning as directed in AATCC Method 132.

7.3.3 *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 supplier.

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

NOTE 6—There is a distinct difference in spectral distribution between the various types of machines listed in AATCC Method 16, with no overall correlation between them. Consequently, these machines cannot be used interchangeably. In case of controversy, AATCC Method 16 Option 3 shall prevail.

7.4 *Flammability*—Determine flammability as directed in Test Method D4151 except when regulated by applicable Government mandatory standards.

7.5 *Product:*

7.5.1 *Appearance*—Before and after laundering, determine the appearance of blanket fabric, hems, seams, binding, or such other appearance characteristics as are agreed upon between the purchaser and the supplier.

8. Report

8.1 State that the specimen(s) were tested as directed in Performance Specification D5432. Describe the fiber content, the type of fabric, the type(s) of blanket product tested, and identify the components.

8.2 The report shall include the following additional information:

8.2.1 Objective of the test,

8.2.2 Description and identification of blanket product(s),

8.2.3 Description of the method of sampling used,

8.2.4 List of performance characteristics evaluated, the test method used for each, and the results of each,

8.2.5 Number of laundering cycles and the wash conditions used, and

8.2.6 Conclusion, if appropriate.

9. Conformance

9.1 When the purchaser and the supplier have agreed upon specific requirements for the characteristics that are to be considered, blanket products that fail to meet these requirements may be rejected. Rejection should be reported to the supplier in writing. In case of disagreement with the results of the test, the supplier may make claim for a retest.