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Standard Specification for Woven and Knitted Comforter and Accessory Products for Institutional and Household Use[1]

This standard is issued under the fixed designation D6663; 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 woven and knit comforter and accessory products, except for pillows and window treatments, for use in institutional and household environments.

1.2 The following safety hazards caveat pertains only to the test methods described in this specification: *This standard may involve hazardous materials, operations, and equipment. 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

D1230 Test Method for Flammability of Apparel Textiles (Withdrawn 2010)[3]

D1776 Practice for Conditioning and Testing Textiles

D2905 Practice for Statements on Number of Specimens for Textiles (Withdrawn 2008)[3]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

D3512 Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Random Tumble Pilling Tester

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

D3882 Test Method for Bow and Skew in Woven and Knitted Fabrics

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

2.2 *AATCC Standards:*[4]

Test Method 8 Colorfastness to Crocking: AATCC Crockmeter Method

Test Method 15 Colorfastness to Perspiration

Test Method 16 Colorfastness to Light

Test Method 61 Colorfastness to Laundering, Home and Commercial: Accelerated

Test Method 88B Appearance of Seams in Durable Press Items After Repeated Home Launderings

Test Method 96 Dimensional Changes in Commercial Laundering of Woven and Knitted Fabrics Except Wool

Test Method 116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method

Test Method 124 Appearance of Fabrics After Repeated Home Laundering

Test Method 132 Colorfastness to Drycleaning

Test Method 135 Dimensional Changes in Automatic Home Laundering of Woven and Knit Fabrics

Test Method 143 Appearance of Apparel and Other Textile End Products After Repeated Home Launderings

Evaluation Procedure 1 Gray Scale for Color Change

Evaluation Procedure 2 Gray Scale for Staining

2.3 *Other Documents:*

Glossary for AATCC Standard Terminology[5]

NOTE 1—Reference to test methods in this performance 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 definitions of other textile terms used in this performance specification, refer to Terminology D123 and the

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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.

[5] Available in the AATCC Technical Manual.

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AATCC Glossary. For definitions of care labeling terms, refer to Terminology D3136.

3.1.2 *bedskirt, n*—a decorative product which is positioned below the mattress and drapes to the floor; a dustruffle.

3.1.3 *comforter, n*—a bed covering assembly, consisting of an insulating filler secure between two layers of fabric, designed to reduce heat loss.

3.1.4 *comforter accessories, n*—products which augment or enhance the decorative feature of the comforter.

3.1.4.1 *Discussion*—Accessories can include pillowshams, dustruffles, bedskirts, duvets, etc. but does not include pillows or window treatments.

3.1.5 *duvet, n*—a decorative outercover in which a comforter is inserted.

3.1.6 *fill leakage, n*—in comforters, either partial or total penetration of batting material through the outer or face fabric.

3.1.7 *pillow sham, n*—a decorative product which covers a bed pillow.

3.1.8 For definitions of other textile terms used in this specification, refer to Terminology D123 and the AATCC Glossary. For definitions of care labeling terms, refer to Terminology D3136.

4. Significance and Use

4.1 Upon mutual agreement between the purchaser and the supplier, comforter and accessory 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 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 ASTM Specification XXXX except for the following characteristic(s)."

TABLE 1 Specification Requirements

Characteristics	Requirements		Section
	Woven Comforter and Accessories	Knitted Comforter and Accessories	
Breaking Force (CRT) Type Machine—Each Direction[A]	133 N (30 lbf) Min	NA	7.1.1
Bursting Strength[A]	NA	155 kPa (35 psi) Min	7.1.2
Pilling	4.0 Min	4.0 Min	7.1.3
Dimensional Change to:			7.1.4
Laundering—Each Direction	3.0 % Max	5.0 % Max	
Dry Cleaning—Each Direction	3.0 % Max	5.0 % Max	
Refurbishing Appearance (Fabric)			7.2.1
Polyester/Cotton	SA 3.0 Min[B]	SA 3.0 Min[B]	
100 % Cotton	SA 2.2 Min[B]	SA 2.2 Min[B]	
Bow and Skewness			7.1.7
Fabric Weave	3.0 % Max	3.0 % Max	
Pattern Print	Acceptable	Acceptable	
Colorfastness to:			
Laundering:			7.1.7.1
Alteration in Shade	Class 4 Min[C]	Class 4 Min[C]	
Staining	Class 3 Min[D]	Class 3 Min[D]	
Dry Cleaning - (Shade Change)	Class 4 Min[C]	Class 4 Min[C]	7.1.7.2
Crocking			7.1.7.3
Dry	Class 4 Min[D]	Class 4 Min[D]	
Wet	Class 3 Min[D]	Class 3 Min[D]	
Light (20 AATCC FU)			7.1.7.4
Xenon-Arc[A]	Step 4 Min[C]	Step 4 Min[C]	
Perspiration			7.1.7.5
Alteration in Shade	Class 4 Min[C]	Class 4 Min[C]	
Staining	Class 3 Min[D]	Class 3 Min[D]	
Flammability (Product)	Class 1	Class 1	7.1.7.6
Refurbishing Appearance (Product)	Acceptable	Acceptable	7.2.1
Fill Leakage (Product)	Acceptable	Acceptable	7.2.2

[A] There is more than one standard method that can be used to measure breaking force, bursting force, tear resistance, and lightfastness. These methods cannot be used interchangeably because there may be no overall correlation between them. See Notes 2-5.
[B] Class in colorfastness and SA rating is baled on a numerical scale of 5.0 for negligible color change, color transfer, or wrinkling to 1.0 for vary severe color change, color transfer or wrinkling. The numerical rating in Table 1 or higher is acceptable.
[C] AATCC Gray Scale for Color Change.
[D] AATCC Gray Scale for Staining.

4.3 Where no pre-purchase 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 product.

4.4 The uses and significance of particular properties and test methods are discussed in the appropriate sections of the specified test methods. See Practice D1776.

5. Sampling

5.1 *Acceptance Testing Lot*—Unless agreed otherwise, 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 consumer. Any "partially finished" or "post-finish" fabrics should be processed in accordance with the fabric manufacturer's instructions.

5.3.1 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.

5.3.2 Use a reliable estimate of the variability of individual observations on similar materials in the user's laboratory, a 95 % probability level, and an allowable difference of 5 % of the average between the test results on laboratory sampling units and the average for the laboratory sampling unit.

5.3.3 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 the laboratory sampling unit.

6. Specification Requirements

6.1 The properties of institutional and household comforter and accessory products shall conform to the specification requirements in Table 1 or by mutual agreement between the purchaser and the supplier.

7. Test Methods

7.1 *Fabric*—The physical and colorfastness properties of the fabrics in the woven and knit comforter products shall be evaluated as directed as follows:

7.1.1 *Breaking Force*—Determine the breaking force as directed in Test Method D5034, using a constant-rate-of traverse CRT-type tensile testing machine with the speed of the pulling jaw at 300 ±10 mm/min (12.0 ± 0.5 in/min).

NOTE 2—If preferred, a constant-rate-of, extension CRE-type testing machine may be used. The crosshead speed should be the same speed as for the (CRT) or as agreed upon between the purchaser and the supplier. There may be no overall correlation between the results obtained with the CRT-type machine and with the CRE-type machine. Consequently, these two breaking force testers cannot be used interchangeably. In case of controversy, use of the CRT-type machine shall prevail.

7.1.2 *Bursting Strength*—Determine the bursting strength of knit fabrics as directed in Test Method D3786 or Test Method D3787 as agreed upon between the purchaser and the supplier.

NOTE 3—There is no overall correlation between the results obtained with the CRT-type machine equipped with a bursting attachment and the diaphragm bursting tester. Consequently, these two bursting testers cannot be used interchangeably. In the case of controversy, the motor-driven tester in Test Method D3786 shall prevail.

NOTE 4—The precision of the bursting strength testers has not been established. The methods are accordingly not recommended for acceptance testing unless preceded by an interlaboratory check in the laboratories of the purchaser and supplier, using randomized replicate specimens of the material to be evaluated.

7.1.3 *Pilling*—Determine pilling as directed in Test Method D3512 with a test time (run time) of 30 min.

7.1.4 *Dimensional Change*—Determine the maximum dimensional change after refurbishing five times following permanently attached care label instructions or as directed in AATCC Test Method 135 for household use, AATCC Test Method 158 for drycleaning, or AATCC Test Method 96 for institutional use or as agreed upon between the purchaser and the supplier.

7.1.4.1 If there is no attached care label, the refurbishing conditions shall be as specified by the supplier when using AATCC Test Method 135 for household products, AATCC Test Method 158 for drycleaning, or AATCC Test Method 96 for institutional products.

7.1.4.2 When chlorine bleach is to be used, introduce one cup of any liquid chlorine household bleach containing 5.25 % sodium-hypochlorite (5.0 % available chlorine) into the washer in the manner directed on the bleach container.

7.1.4.3 When non-chlorine bleach is to be used, introduce it into the washer in the amount and manner directed on the container.

7.1.5 *Appearance*—Determine the smoothness appearance of the fabrics after five launderings as directed in AATCC Test Method 124 unless otherwise agreed upon between the purchaser and the supplier.

7.1.6 *Bow and Skewness*—Before and after refurbishing determine the bow and skewness of the comforter fabrics or products as directed in Test Method D3882 with tolerances as stated in Table 1 or as agreed upon between the purchaser and supplier.

7.1.7 *Colorfastness:*

7.1.7.1 *Laundering*—Determine the colorfastness to laundering as directed in AATCC Test Method 61 unless otherwise agreed upon between the purchaser and the supplier.

7.1.7.2 *Drycleaning*—For drycleanable fabrics determine the colorfastness to drycleaning as directed in AATCC Test Method 132.

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

7.1.7.4 *Light*—Determine the colorfastness to light as directed in AATCC Test Method 16, Option A or E.

NOTE 5—In case of controversy, AATCC Test Method 16, Option 3 shall prevail.

7.1.7.5 *Perspiration*—Determine the colorfastness to perspiration as directed in AATCC Test Method 15.

7.1.7.6 *Flammability*—The flammability requirements shall be as agreed upon between the purchaser and the supplier, except when regulated by applicable government mandatory standards. If flammability is to be tested, Test Method D1230 can be used as the method of evaluation; test only as received and not refurbished.

7.2 *Product:*

7.2.1 *Appearance*—Before and after refurbishing, evaluate the appearance of fabric and all component parts, such as seams and trim. Mount and evaluate as directed in Section 7 of AATCC Test Method 143 using appropriate standards as described in AATCC Test Method 88B and 124. Acceptance performance requirements shall be as agreed upon between the purchaser and the supplier.

7.2.1.1 Evaluate the filling distribution after refurbishing, using AATCC Test Method 143.

7.2.2 *Fill Leakage*—No acceptable standard method is yet available for the determination of this fabric property. Depending on the type of fill used during the manufacture of the comforter, and the cover factor of face and back fabrics, varied degrees of fill leakage may occur, and this property can only be evaluated on the assembled comforter. Hence, the, degree of permissible fill leakage should be agreed upon by the purchaser and the supplier.

8. Conformance

8.1 When the purchaser and supplier have agreed upon specific requirements for the characteristics that are to be considered, comforter and comforter accessory products that fail to meet those 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.

9. Keywords

9.1 comforter products; performance specification

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