Designation: D4769 – 12

# Standard Specification for Woven and Warp Knitted Comforter Fabrics[1]

This standard is issued under the fixed designation D4769; 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 woven and warp knitted comforter 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

D1424 Test Method for Tearing Strength of Fabrics by Falling-Pendulum (Elmendorf-Type) Apparatus

D2261 Test Method for Tearing Strength of Fabrics by the Tongue (Single Rip) Procedure (Constant-Rate-of-Extension Tensile Testing Machine)

D2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics

D2905 Practice for Statements on Number of Specimens for Textiles (Withdrawn 2008)[3]

D3786 Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method

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 1 Colorfastness to Light: Carbon-Arc-Lamp, Continuous Light

16 Option 3 Colorfastness to Light: Xenon-Arc Lamp, Continuous Light

61 Colorfastness to Laundering: Accelerated

116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method

124 Smoothness Appearance of Fabrics After Repeated Home Launderings

132 Colorfastness to Drycleaning

135 Dimensional Changes of Fabrics after Home Laundering

AATCC Evaluation Procedure 1 Gray Scale for Color Change

AATCC Evaluation Procedure 2 Gray Scale for Staining

AATCC Evaluation Procedure 8 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 cited 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: comforter, fill leakage.

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

## 4. Specification Requirements

4.1 The properties of woven comforter fabrics shall conform to the specification requirements in Table 1.

[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 1988. Last previous edition approved in 2000 as D4769 - 88 (2000) which was withdrawn October 2009 and reinstated in February 2012.DOI: 10.1520/D4769-12.

[2] *Annual Book of ASTM Standards*, Vol 07.01.

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, P.O. Box 12215, Research Triangle Park, NC 27709.

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. United States

**TABLE 1 Specification Requirements**

NOTE 1—Class in *A*, *B*, and *C*, and D.P. 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 | Woven Fabrics | Warp Knit Fabrics | Section |
|---|---|---|---|
| Breaking Strength (Load) | 133 N (30 lbf) min | NA | 7.2 |
| Bursting Strength (Motor-Driven Diaphragm Tester) | NA | 35 psi (155 kPa) | 7.2 |
| Tear Strength | 6.7 N (1.5 lbf) min | NA | 7.3 |
| Dimensional Change: | | | |
| Laundering | 3 % max | 5 % max | 7.4.1 |
| Drycleaning | 3 % max | 5 % max | 7.4.2 |
| Fabric Appearance | SA 3.5 min | SA 3.5 min | 7.5 |
| Colorfastness | | | 7.6 |
| Laundering: | | | |
| Shade Change | Grade 4[A] min | Grade 4[A] min | 7.6.1 |
| Staining | Grade 3[B] min | Grade 3[B] min | 7.6.1 |
| Drycleaning: | | | |
| Shade Change | Grade 4[A] min | Grade 4[A] min | 7.6.2 |
| Crocking: | | | |
| Dry | Grade 4[C] min | Grade 4[C] min | 7.6.3 |
| Wet | Grade 3[C] min | Grade 3[C] min | 7.6.3 |
| Light (20 AATCC SFU) | Grade 4[A] min | Grade 4[A] min | 7.6.4 |

[A] AATCC Gray Scale For Color Change.
[B] AATCC Gray Scale For Staining.
[C] AATCC 9-Step Chromatic Transference Scale.

## 5. Significance and Use

5.1 Upon mutual agreement between the purchaser and seller, fabrics intended for this end use should meet all 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 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 seller.

5.2.1 If any of the requirements in Table 1 are modified by mutual agreement between purchaser and seller, any reference to the specification shall state that: "This fabric meets ASTM Specification D4769, except for the following characteristic(s)."

5.3 Where no prepurchase agreement has been reached between the purchaser and seller, and in case of controversy, the requirements listed in Table 1 are intended to be used as a guide only. As stated 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 *Acceptance Testing Lot*—Unless there is prior agreement, consider as a lot for acceptance testing all material of a single item received as a single shipment.

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

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

6.4 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 sampling unit. Use (*1*) a reliable estimate of the variability of individual observations on similar materials in the user's laboratory, (*2*) a 95 % probability level, and (*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.

## 7. Test Methods (See Note 1)

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

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

7.2 *Bursting Strength*—Determine the bursting strength of knit fabrics in the standard atmosphere for testing textiles, as directed in Test Method D3786, or Test Method D6797 as agreed 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.

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 seller, using randomized replicate specimens of the material to be evaluated.

7.3 *Tear Strength*—Determine the tear strength of woven fabrics as directed in Test Method D1424.

NOTE 5—If preferred, the use of Test Methods D2261 is permitted, with existing requirements as given in this specification. There may be no overall correlation between the results obtained with the tongue tear method (Test Method D2261), and the Elmendorf machine (D1424). Consequently, these three testers cannot be used interchangeably. In case of controversy, Test Method D1424 shall prevail.

7.4 *Dimensional Change:*

7.4.1 *Laundering*—Determine the maximum dimensional change after five launderings as directed in AATCC Method 135, using the wash conditions and drying procedures specified by the seller.

7.4.2 *Drycleaning*—Determine the maximum dimensional change after three drycleanings as directed in Test Methods D2724, or as agreed between the purchaser and seller.

NOTE 6—Do not flat bed press the test specimens after drycleaning, as directed in Test Methods D2724, as the fabric in its end use should not be pressed.

7.5 *Fabric Appearance*—Determine the fabric appearance as directed in AATCC Method 124, after laundering as specified in 7.4.1, for washable fabrics, or drycleaning as specified in 7.4.2 for drycleanable fabrics (Note 6).

7.6 *Colorfastness:*

7.6.1 *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.

7.6.2 *Drycleaning*—For drycleanable items, determine the colorfastness to drycleaning as directed in AATCC Method 132.

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

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

NOTE 7—There is a distinct difference in spectral distribution between the various types of machines listed in AATCC Test 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.

## 8. Keywords

8.1 comforter; specification; woven and warp knitted fabrics

*ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.*

*This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.*

*This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org). Permission rights to photocopy the standard may also be secured from the ASTM website (www.astm.org/COPYRIGHT/).*