



Designation: D4769 – 88 (Reapproved 2000)

## Standard Specification for Woven and Warp Knitted Comforter Fabrics<sup>1</sup>

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 ( $\epsilon$ ) 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 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:*<sup>2</sup>

D123 Terminology Relating to Textiles<sup>2</sup>

D1424 Test Method for Tearing Strength of Fabrics by Falling-Pendulum (Elmendorf-Type) Apparatus<sup>2</sup>

D1682 NO TITLE<sup>2</sup>

D2261 Test Method for Tearing Strength of Fabrics by the Tongue (Single Rip) Procedure (Constant-Rate-of-Extension Tensile Testing Machine)<sup>2</sup>

D2262 NO TITLE<sup>2</sup>

D2724 Test Methods for Bonded, Fused, and Laminated Apparel Fabrics<sup>2</sup>

D2905 Practice for Statements on Number of Specimens for Textiles<sup>3 4</sup>

D3786 Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method<sup>4</sup>

D3787 Test Method for Bursting Strength of Textiles—Constant-Rate-of-Traverse (CRT) Ball Burst Test

2.2 AATCC Methods:<sup>5</sup>

8 Colorfastness to Crocking: AATCC Crockmeter Method

16A Colorfastness to Light: Carbon-Arc-Lamp, Continuous Light

16E Colorfastness to Light: Water-Cooled Xenon-Arc Lamp, Continuous Light

23 Colorfastness to Burnt Gas Fumes

61 Colorfastness to Washing, Domestic, and Laundering, Commercial: Accelerated

116 Colorfastness to Crocking: Rotary Vertical Crockmeter Method

124 Appearance of Durable Press Fabrics After Repeated Home Launderings

132 Colorfastness to Drycleaning

135 Dimensional Changes in Automatic Home Laundering of Durable Press Woven or Knit Fabrics

AATCC Evaluation Procedure 1 Gray Scale for Color Change

AATCC Evaluation Procedure 2 Gray Scale for Staining

AATCC Evaluation Procedure 3 Chromatic Color 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.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee D-13 on Textiles and is the direct responsibility of Subcommittee D13.56 on Performance Standards for Textile Fabrics.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 07.01.

<sup>3</sup> Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 07.02.

<sup>5</sup> Available from American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

### 3. Terminology

#### 3.1 Definitions:

3.1.1 *comforter, n*—a bed covering assembly, consisting of an insulating filler secured between two layers of fabric, used primarily to reduce heat loss.

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

3.1.3 For definitions of other textile terms used in this specification, refer to Terminology **D123**, and the Technical Manual of the American Association of Textile Chemists and Colorists.

### 4. Specification Requirements

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

### 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 (Load)*—Determine the dry breaking strength of woven fabrics, in the standard atmosphere for testing textiles, as directed in Test Method **D1682**, using a constant-rate-of-traverse (CRT) tensile testing machine, with the speed of the pulling jaw at  $305 \pm 13$  mm ( $12 \pm 0.5$  in.)/min.

**NOTE 2**—If preferred, the use of a constant-rate-of-extension (CRE) tensile testing machine is permitted. The cross head speed should be as agreed between the purchaser and the seller. There may be no overall correlation between the results obtained with the CRT and CRE machines. Consequently, these two testers cannot be used interchangeably. In case of controversy, the CRT method shall prevail.

7.2 *Bursting Strength*—Determine the bursting strength of warp knit fabrics in the standard atmosphere for testing textiles, as directed in Test Method **D3786**, or Test Method **D3787** as agreed between the purchaser and seller.

**NOTE 3**—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 motor-driven diaphragm tester method (Test Method **D3786**) shall prevail.

**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                                     | D.P. 3.5 min             | D.P. 3.5 min             | 7.5     |
| Colorfastness:                                        |                          |                          |         |
| Burnt Gas Fumes-2 cycles                              | Class 4 <sup>A</sup> min | Class 4 <sup>A</sup> min | 7.6.1   |
| Shade Change After One Laundering or One Dry-cleaning | Class 4 <sup>A</sup> min | Class 4 <sup>A</sup> min | 7.6.1   |
| Laundering:                                           |                          |                          |         |
| Shade Change                                          | Class 4 <sup>A</sup> min | Class 4 <sup>A</sup> min | 7.6.2   |
| Staining                                              | Class 3 <sup>B</sup> min | Class 3 <sup>B</sup> min | 7.6.2   |
| Drycleaning:                                          |                          |                          |         |
| Shade Change                                          | Class 4 <sup>A</sup> min | Class 4 <sup>A</sup> min | 7.6.3   |
| Crocking:                                             |                          |                          |         |
| Dry                                                   | Class 4 <sup>C</sup> min | Class 4 <sup>C</sup> min | 7.6.4   |
| Wet                                                   | Class 3 <sup>C</sup> min | Class 3 <sup>C</sup> min | 7.6.4   |
| Light (20 AATCC SFU)                                  | Class 4 <sup>A</sup> min | Class 4 <sup>A</sup> min | 7.6.5   |
| Flammability                                          | Pass                     | Pass                     | 7.7     |
| Fill Leakage                                          | ...                      | ...                      | 7.8     |

<sup>A</sup> AATCC Gray Scale For Color Change.

<sup>B</sup> AATCC Gray Scale For Staining.

<sup>C</sup> AATCC Chromatic Transference Scale.