



Designation: D 3597 – 95a (Reapproved 2001)

Standard Specification for Woven Upholstery Fabrics—Plain, Tufted, or Flocked¹

This standard is issued under the fixed designation D 3597; 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 performance requirements for plain, tufted, or flocked woven upholstery fabrics as used in the manufacture of new indoor furniture. These requirements apply to both the warp and filling directions for those factors where each fabric direction is pertinent.

1.2 This specification is not applicable to fabrics used in porch, deck, or lawn furniture; nor for knitted fabrics, bonded or laminated fabrics, or surface-coated fabrics (such as vinyls and urethanes).

1.3 *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:

- D 123 Terminology Relating to Textiles²
 - D 434 Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam²
 - D 1175 Method of Abrasion Resistance of Textile Fabrics (Oscillatory Cylinder and Uniform Abrasion)³
 - D 1424 Test Method for Tear Resistance of Woven Fabrics by Falling-Pendulum (Elmendorf) Apparatus²
 - D 2262 Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine)²
 - D 2905 Practice for Statements on Number of Specimens for Textiles²
 - D 5034 Test Method for Breaking Force and Elongation of Textile Fabrics (Grab Test)⁴
- #### 2.2 AATCC Test Methods:⁵
- 8 Colorfastness to Crocking:

- Crockmeter Method
- 16 Colorfastness to Light
- 23 Colorfastness to Burnt Gas Fumes
- 107 Colorfastness to Water
- 116 Colorfastness to Crocking:
 - Rotary Vertical Crockmeter Method⁵
- 129 Colorfastness to Ozone in the Atmosphere Under High Humidities
- Gray Scale for Color Change, Evaluation Procedure 1
- Chromatic Transference Scale, Evaluation Procedure 3
- Specifications Standards Test Procedures for Upholstered Furniture Fabrics⁶
- Guides for the Household Furniture Industry⁷
- 2.3 *Federal Standard:*
 - 16CFR, Chapter II—Consumer Product Safety Commission, Subchapter D—Flammable Fabrics Act Regulation⁸
- 2.4 *Military Standard:*
 - MIL-STD-105D Sampling Procedures and Tables for Inspection by Attributes⁹

NOTE 1—Reference 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 For definitions of textile terms used in this specification, refer to Terminology D 123. Definitions found in a dictionary of common terms are suitable for terms used in this specification.

4. Significance and Use

4.1 Upon mutual agreement between the purchaser and the supplier, woven fabrics 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

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 Dec. 10, 1995. Published March 1996. Originally published as D 3597 – 77. Last previous edition D 3597 – 95.

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

³ Discontinued—Replaced by D 4157 and D 4158 in *Annual Book of ASTM Standards*, Vol 07.01.

⁴ *Annual Book of ASTM Standards*, Vol 07.02.

⁵ AATCC Technical Manual, available from the American Association of Textile Chemists and Colorists, P. O. Box 12215, Research Triangle Park, NC 27709.

⁶ Issued in 1969 by the National Association of Furniture Manufacturers and the National Retail Furniture Association. Available from Home Furniture Manufacturers Assn., P. O. Box HP-7, High Point, NC 27261.

⁷ Available from the Bureau of Consumer Protection, Federal Trade Commission, Washington, DC 20580.

⁸ Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

⁹ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.



TABLE 1 Specification Requirements

Characteristics	Requirements	Section
Breaking strength (load)	222 N (50 lbf), min	7.1
Tongue tear strength	27 N (6 lbf), min	7.2
Resistance to yarn slippage	111 N (25 lbf), min	7.3
Surface abrasion ^A		
Light-duty	3000 cycles (double rubs), min	7.4
Medium-duty	9000 cycles (double rubs), min	7.4
Heavy-duty	15,000 cycles (double rubs), min	7.4
Dimensional change:		
Warp or filling	5.0% shrinkage, max to 2.0% gain, max	7.5
Colorfastness to: ^B		
Water, ^C Color Change	class 4, ^D min	7.6
Solvent, ^C Color Change	class 4, ^D min	7.7
Burnt gas fumes-2 cycles	class 4, ^D min	7.8
Crocking:		
Dry	class 4, ^E min	7.9
Wet	class 3, ^E min	7.9
Light-40 AATCC Fading Units	class 4, ^D min	7.10
Ozone 1 cycle	class 4, ^D min	7.11
Retention of hand, character, and appearance	pass	7.12
Durability of back coating	pass	7.13
Flammability	pass	7.14
FTC Requirements	pass	7.15

^A For guideline purposes—See Note 4.

^B Class in the colorfastness requirements is based on a numerical scale of 5 for negligible for no colorchange or color transfer to 1 for very severe color change or color transfer.

^C For guidelines purposes—See Section 7.6.2.

^D AATCC Gray Scale for Color Change.

^E AATCC Chromatic Transference Scale.

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 the supplier.

4.2.1 In such cases, any references to the specification shall specify that: This fabric meets ASTM Specification D 3597 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 of fabric.

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

5. Sampling

5.1 Tests shall be performed on the fabric as it will reach the consumer.

5.2 Select the lot samples as specified in the applicable test methods. In the absence of such instructions in a specific test method, select the lot sample as agreed by the purchaser and the seller.

5.2.1 *Lot Sample*—As a lot sample for acceptance testing, take at random the number of rolls as directed in an applicable specification of other agreement between the purchaser and the supplier, such as an agreement to use MIL-STD-105D.

5.2.2 *Laboratory Sample*—From each roll or piece in the lot sample, cut two laboratory samples the full width of the fabric and at least 375 mm (15 in.) along the selvage.

5.3 Unless otherwise agreed upon, as when specified in an applicable material specification, take the number of specimens as directed in each of the applicable test methods.

5.3.1 If there has been no prior agreement and the test method does not specify the number of specimens, use the procedures in Practice D 2905 to determine the number of specimens, such that the user may expect at the 95 % probability level that the test result is no more than 5 % of the average above or below the true average that is, a theoretical average from an infinite number of observations when using a reliable estimate of variability of individual observations on similar materials in the user's laboratory under conditions of single operator precision.

6. Specification Requirements

6.1 The properties of woven upholstery fabrics (plain, tufted, or flocked) shall conform to the specification requirements in Table 1.

7. Test Methods (See Note 1)

7.1 *Breaking Strength*—Determine the dry breaking force in the standard atmosphere for testing textiles, as directed in Test Method D 5034, using a constant rate of traverse (CRT) tensile testing machine with the speed of the pulling clamp at 300 ± 10 mm ($12 \pm \frac{1}{2}$ in.)/min.

NOTE 2—If preferred, the use of a constant-rate-of-extension (CRE) tensile testing machine is permitted. The crosshead speed should be as agreed between the purchaser and the supplier. However, in case of controversy the CRT method shall prevail.

7.2 *Tear Strength*—Determine the tear strength in accordance with Test Method D 2262.

NOTE 3—If preferred, use of Test Method D 1424 is permitted with