



## Standard Test Method for Surface Water Absorption of Terry Fabrics (Water Flow)<sup>1</sup>

This standard is issued under the fixed designation D 4772; 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 test method determines the ability of a terry fabric to rapidly absorb and retain liquid water from surfaces such as human skin, dishes, and furniture.

1.2 This test method is not applicable to non-terry fabrics such as huck towels, waffle-weave towels, crash towels, flour-sack towels, and nonwoven wipes. The steep angle of the specimen on the apparatus may cause a large amount of water to runoff these non-pile fabrics, or the lightweight/open structure of these fabrics may allow a large amount of water to completely pass through the specimen; thus the test result may not be a valid measure of a non-terry fabric's ability to absorb water.

1.3 This test method is not applicable to decorative terry fabrics that will not be used to absorb water from surfaces.

1.4 This test method is written in SI units. The inch-pound units that are provided are not necessarily exact equivalents of the SI units. Either system of units may be used in this test method. In case of referee decisions the SI units will prevail.

1.5 *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>

- D 123 Terminology Relating to Textiles
- D 1776 Practice for Conditioning Textiles for Testing
- D 2904 Practice for Interlaboratory Testing of a Textile Test Method that Produces Normally Distributed Data
- D 2906 Practice for Statements on Precision and Bias for Textiles
- D 3136 Terminology for Permanent Care Labels for Consumer Textile and Leather Products Other Than Carpets and Upholstery

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.59 on Fabric Test Methods, General.

Current edition approved Jan. 10, 1997. Published June 1997. Originally published as D 4772-88. Last previous edition D 4772 – 88.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website

D 5433 Performance Specification for Towel Products for Institutional and Household Use

#### 2.2 AATCC Standard:

Test Method 135 Dimensional Changes in Automatic Home Laundering of Woven and Knit Fabrics<sup>3</sup>

### 3. Terminology

#### 3.1 Definitions:

3.1.1 *absorption, n*—a process in which one material (the absorbent) takes in or absorbs another (the absorbate); as the absorption of moisture by fibers.

3.1.2 *pile, n—in pile fabric*, the raised loops or tufts (cut loops) that form all or part of the surface.

3.1.3 *surface water absorption, n—by a fabric*, the process of removing liquid water from a surface such as human skin, dishes, or furniture.

3.1.4 *terry fabric, n*—a material with a woven warp pile or a knitted pile, with uncut loops on a single side or uncut loops on both sides, and which is used for such products as toweling, beachwear, and bathrobes.

3.1.5 For definitions of other textile terms used in this test method, refer to Terminologies D 123 and D 3136.

### 4. Summary of Test Method

4.1 A terry fabric product with hems or with both hems and selvages (such as a bath towel), or a terry fabric without hems or without both hems and selvages (such as a terry fabric cut from a roll) is prepared for testing by preconditioning and conditioning. Specimens are placed one at a time in an embroidery hoop and then the hoop/specimen assembly is placed at an angle on the base of the apparatus. After water flows down the surface of each specimen, the amount of water retained by each specimen is measured. Six specimens are tested, three on the face of the fabric and three on the back of the fabric. The six observations are averaged to determine the surface water absorption of the fabric.

### 5. Significance and Use

5.1 This test method may be used to test the surface water absorption of terry fabrics for bath towels, bath sheets, hand towels, kitchen towels, dishcloths, washcloths, beachwear,

<sup>3</sup> Available from American Association of Textile Chemists and Colorists, P.O. Box 12215, Research Triangle Park, NC 27709.

