



Designation: D1776/D1776M – 20 (Reapproved 2024)

Standard Practice for Conditioning and Testing Textiles¹

This standard is issued under the fixed designation D1776/D1776M; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This practice covers the conditioning and testing of textiles when conditioning is specified in a test method. Because prior exposure of textiles to high or low humidity may affect moisture pick-up equilibrium, a procedure also is given for preconditioning the material when required.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

D123 Terminology Relating to Textiles

D618 Practice for Conditioning Plastics for Testing

D885/D885M Test Methods for Tire Cords, Tire Cord Fabrics, and Industrial Filament Yarns Made from Manufactured Organic-Base Fibers (Withdrawn 2023)³

D4920 Terminology Relating to Conditioning, Chemical, and Thermal Properties (Withdrawn 2022)³

D5867 Test Methods for Measurement of Physical Properties of Raw Cotton by Cotton Classification Instruments

D7269/D7269M Test Methods for Tensile Testing of Aramid Yarns

D7744/D7744M Test Methods for Tensile Testing of High Performance Polyethylene Films

E337 Test Method for Measuring Humidity with a Psychrometer (the Measurement of Wet- and Dry-Bulb Temperatures)

2.2 ISO Standard:

ISO 139 Textiles Standard Atmosphere for Conditioning and Testing⁴

3. Terminology

3.1 For terminology related to conditioning see Terminology **D4920**.

3.2 The following terms are relevant to this standard: accelerated conditioning, moisture content, moisture equilibrium, moisture equilibrium for preconditioning, moisture equilibrium for testing, precondition, standard atmosphere for preconditioning textiles, standard atmosphere for testing textiles, uncertainty of (in) measurement.

3.3 For definitions of other textile terms used in this standard see Terminology **D123**.

4. Summary of Practice

4.1 Samples or specimens requiring preconditioning are brought to relatively low moisture content in a specified atmosphere. Samples or specimens not requiring preconditioning are brought to moisture equilibrium (specific to fiber-content) according to the standard atmospheres for testing textiles as shown in **Table 1**.

4.2 Understanding of tolerance and uncertainty of measurement has evolved since the creation of the original version of this standard. Due to this new understanding, uncertainty of measurement has been taken into account in determining

¹ This practice is under the jurisdiction of ASTM Committee **D13** on Textiles and is the direct responsibility of Subcommittee **D13.51** on Conditioning, Chemical and Thermal Properties.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. 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 National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.