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Standard Terminology for Cotton Fibers¹

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^ε¹ NOTE—Terms from D7785 were added editorially in May 2012.

1. Scope

1.1 This standard is the compilation of all terminology developed by Subcommittee D13.11 on Cotton Fibers.

1.2 This terminology is unique to the Cotton Fibers industry. Meanings of the same terms used outside the industry can be found in other compilations or in dictionaries of general usage.

1.3 In addition to being a specialized dictionary, D7139 is also a tool for managing the Subcommittee's terminology. This includes finding, eliminating, and preventing redundancies, that is, where two or more terms relating to the same concept are defined in different words.

1.4 Terms listed are under the jurisdiction of Subcommittee D13.11.

1.5 For definitions of other textile terms see Terminology D123.

2. Referenced Documents

2.1 *ASTM Standards*:²

D123 Terminology Relating to Textiles

D1440 Test Method for Length and Length Distribution of Cotton Fibers (Array Method)

D1441 Practice for Sampling Cotton Fibers for Testing

D1442 Test Method for Maturity of Cotton Fibers (Sodium Hydroxide Swelling and Polarized Light Procedures)

D1445 Test Method for Breaking Strength and Elongation of Cotton Fibers (Flat Bundle Method)

D1447 Test Method for Length and Length Uniformity of Cotton Fibers by Photoelectric Measurement

D1448 Test Method for Micronaire Reading of Cotton Fibers

D1464 Practice for Differential Dyeing Behavior of Cotton

D1684 Practice for Lighting Cotton Classing Rooms for Color Grading

D2495 Test Method for Moisture in Cotton by Oven-Drying

D2496 Test Method for Seed Coat Fragments and Funiculi in Cotton Fiber Samples (Withdrawn 1986)³

D2812 Test Method for Non-Lint Content of Cotton

D3025 Practice for Standardizing Cotton Fiber Test Results by Use of Calibration Cotton Standards

D3990 Terminology Relating to Fabric Defects

D5332 Test Method for Fiber Length and Length Distribution of Cotton Fibers (Withdrawn 2006)³

D5426 Practices for Visual Inspection and Grading of Fabrics Used for Inflatable Restraints

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

D7785 Test Method for Water in Lint Cotton by Oven Evaporation Combined with Volumetric Karl Fischer Titration

3. Terminology

A-tuft, *n*—a single-pass process for aligning hook free fibers on the Fibroliner FL-101. **D5332**

amount, *n*—in cotton length testing with the Fibrograph (optical) or Length Analyzer (pneumatic), a measure of the thickness, optical or pneumatic density, of the test beard, proportional to the number of fibers present at various distances from the base of the comb(s) (Fibrograph) or the specimen clamp jaws (Length Analyzer). **D1447, D 5867 D5867**

B-tuft, *n*—a two-pass process for aligning hooked fibers on the Fibroliner FL-101. **D5332**

blending plan, *n*—the instructions for mixing fibers during specimen preparation. **D5332**

bound water, *n*—the amount of water in a test specimen that is hydrogen bonded to cellulose and expressed as a percentage of the mass of the specimen. **D7785**

¹ This terminology is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.11 on Cotton Fibers.

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² 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.

- calibration cotton standards**, *n*—cotton samples taken from blended bulk source on which fiber properties have been determined under the International Calibration Cotton Standards Program. **D1448, D3025, D5867**
- coefficient of length variation**, *n*—a measure of fiber length distribution. **D1440, D5332**
- color grading**, *n*—the act of identifying a specimen by a color grade or color score that is specific to the color and the material graded. **D1684**
- color lamp**, *n*—in color determination of cotton with a Color Meter, a lamp with a specific energy output function used in conjunction with special tristimulus filters to obtain a desired response function. **D5867**
- color meter**, *n*—an instrument which measures the fiber sample color as presented in the viewing window, in terms of the tristimulus values Y and Z and transmits these values to the IC/TC for further processing. **D5867**
- color space**, *n*—specific to this standard, the daylight color of opaque specimens are represented by points in a space in terms of three color scales: reflectance, R_d , and the chromaticity coordinates for redness or greenness, $\pm a$, and yellowness or blueness, $\pm b$.
- comber/brusher**, *n*—an instrument which prepares the test beard of fibers for length, length uniformity, strength, and elongation measurements by combing the test specimen to remove loose or unclamped fibers and paralleling the individually clamped fibers, and by brushing the clamped fibers to remove fiber crimp and smooth the test beard of cotton. **D5867**
- control limits**, *n*—predetermined ranges based on the variability of past observations between which the instrument data for a test must fall to be considered valid. **D5867**
- cotton**, *n*—a vegetable seed fiber consisting of unicellular hairs attached to the seed of several species of the genus *Gossypium* of the family Malvaceae. **D1445**
- cotton color diagram**, *n*—a diagram showing the color ranges of standards officially established by the U.S. Department of Agriculture for the various grades of cotton in relation to scales of reflectance. R_d , on the vertical axis, and yellowness, $+ b$, on the horizontal axis. **D5867**
- cotton maturity**, *n*—the degree of fiber wall development. **D1442**
- cotton waste**, *n*—material removed from seed cotton, ginned lint, or stock in process by any cleaning or processing machinery and usually consisting of undesirable fibers or a mixture of cotton fibers with foreign matter. **D2495**
- differential dyeing behavior**, *n*—of cotton, the tendency of cotton fibers to absorb and retain selectively varying proportions of different dyes from a binary dye bath. **D1464**
- elevator**, *n*—a general term describing a mechanical device on the Motion Control, Inc. Fiber Information System which moves the specimen clamp while preparing the specimen or while taking a length/uniformity index or strength/elongation measurement. **D5867**
- elongation at breaking force**, *n*—in fiber strength testing of cotton, the elongation corresponding to the maximum force, and expressed as a percentage of the 1/8-in. (3.2-mm) gage length. **D1445, D5867**
- Fiberweigh**, *n*—an instrument having a capacity for weighing a 51-grain (3.30-g) specimen with a sensitivity of at least 0.2 % of the mass being weighed. **D5867**
- fibrogram**, *n*—in testing cotton fibers for length, the curve representing the second cumulation of the length distribution of the fibers sensed by the length measuring instrument in scanning the fiber board. **D1447, D5867**
- Fibronaire**, *n*—an instrument which determines the micronaire reading of raw cotton fibers using the “porous-plug” air flow technique. **D5867**
- foreign matter**, *n*—in cotton, non-lint material commonly referred to as waste or trash such as dust, sand, seed-coat fragments, leaves, and stems normally present in raw and partially processed cotton. **D2812, D5426**
- free water**, *n*—the amount of water in a test specimen that is hydrogen bonded to other water in cellulose and expressed as a percentage of the mass of the specimen.
DISCUSSION—Free water in cellulose freezes. A distinction of bound water into the freezing and non-freezing kinds is not necessary. Both kinds of bound water, if present, come off the fibers since no residual water can be detected. **D7785**
- ginned lint**, *n*—cotton fibers that have been separated from their seeds by ginning but not subjected to any further processing after ginning. (See **lint cotton**.) **D2495**
- hooks**, *n*—in fiber testing, curved or bent fiber ends caused by the carding or specimen preparation processes. **D5332**
- horseshoe**, *n*—a length of sliver folded in a manner such that the two ends can be fed simultaneously into the needle field of the Fibroliner FL-101. **D5332**
- IC/TC**, *n*—abbreviation for Intelligent Color/Trash Coordinator. **D5867**
- IDT**, *n*—abbreviation for Intelligent Data Terminal. **D5867**
- illumination**, *n*—in lighting, the density or flux of light on a unit area of surface. **D1684**
- immature fibers**, *n*—(1) (cotton fibers treated with sodium hydroxide solution)—fibers that either (a) have swollen and assumed a spiral form, or (b) remained flat, thinly outlined, and almost transparent. Total wall width is less than the lumen width.
(2) (cotton fibers observed under polarized light)—fibers that appear purple, indigo, or blue, turn orange or yellow-orange upon rotation to the subtractive position, and upon removal of the selenite plate show parallel extinction. (Compare **mature fibers**.) **D1442**
- invisible waste**, *n*—in cotton testing, weight loss due to dust, moisture, loose fibers, etc., carried away by the air stream during the test. **D2812**