



Designation: D4849 – 20

Standard Terminology Related to Yarns and Fibers¹

This standard is issued under the fixed designation D4849; 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 standard is a compilation of terminology developed by Committee D13.58 on Yarns and Fibers.

1.1.1 This terminology, mostly definitions, is unique to fibers and yarns used in the textile industry. Terms that are generally understood or adequately defined in other readily available sources are not included.

1.1.2 Subcommittee D13.58 has jurisdictional responsibility for every item in this standard. The standards in which the terms and definitions are used are listed by number after the definition. The wording of an entry cannot be changed without the approval of D13.58 subcommittee. Any changes approved by the subcommittee and main committee are then directed to subcommittee D13.92 on Terminology for subsequent changes or additions to Terminology D123.

1.1.3 This terminology standard is not all inclusive of the terms under the jurisdiction of Subcommittee D13.58. Other terminology standards under the jurisdiction of Subcommittee D13.58 are D3888, D4466, and D4848.

1.2 *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

- D76 Specification for Tensile Testing Machines for Textiles
- D123 Terminology Relating to Textiles
- D861 Practice for Use of the Tex System to Designate Linear Density of Fibers, Yarn Intermediates, and Yarns
- D204 Test Methods for Sewing Threads
- D1059 Test Method for Yarn Number Based on Short-Length Specimens

¹ This terminology is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.58 on Yarns and 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.

- D1230 Test Method for Flammability of Apparel Textiles
- D1244 Practice for Designation of Yarn Construction
- D1422 Test Method for Twist in Single Spun Yarns by the Untwist-Retwist Method
- D1423 Test Method for Twist in Yarns by Direct-Counting
- D1425 Test Method for Evenness of Textile Strands Using Capacitance Testing Equipment
- D1577 Test Methods for Linear Density of Textile Fibers
- D1578 Test Method for Breaking Strength of Yarn in Skein Form
- D1907 Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method
- D2102 Test Method for Shrinkage of Textile Fibers (Bundle Test)
- D2255 Test Method for Grading Spun Yarns for Appearance
- D2258 Practice for Sampling Yarn for Testing
- D2259 Test Method for Shrinkage of Yarns
- D2260 Tables of Conversion Factors and Equivalent Yarn Numbers Measured in Various Numbering Systems
- D2402 Test Method for Water Retention of Textile Fibers (Centrifuge Procedure)
- D2612 Test Method for Fiber Cohesion in Sliver and Top (Static Tests)
- D2494 Test Method for Commercial Mass of a Shipment of Yarn or Manufactured Staple Fiber or Tow
- D2645 Tolerances for Yarns Spun on the Cotton or Worsted Systems
- D2644 Tolerances for Yarns Spun on the Woolen System
- D3106 Test Method for Permanent Deformation of Elastic Yarns
- D3108 Test Method for Coefficient of Friction, Yarn to Solid Material
- D3128 Specification for 2-Methoxyethanol
- D3217 Test Methods for Breaking Tenacity of Manufactured Textile Fibers in Loop or Knot Configurations
- D3218 Specification for Polyolefin Monofilaments
- D3333 Practice for Sampling Manufactured Staple Fibers, Sliver, or Tow for Testing
- D3334 Test Method for Fabrics Woven from Polyolefin Monofilaments (Withdrawn 1989)³
- D3412 Test Method for Coefficient of Friction, Yarn to Yarn

³ The last approved version of this historical standard is referenced on www.astm.org.

D3513 Test Method for Overlength Fiber Content of Manufactured Staple Fiber

D3693 Specification for Labeled Length per Holder of Sewing Thread

D3822 Test Method for Tensile Properties of Single Textile Fibers

D3823 Practice for Determining Ticket Numbers for Sewing Threads

D3888 Terminology for Yarn Spinning Systems

D3937 Test Method for Crimp Frequency of Manufactured Staple Fibers

D3990 Terminology Relating to Fabric Defects

D4031 Test Method for Bulk Properties of Textured Yarns

D4120 Test Method for Fiber Cohesion in Roving, Sliver, and Top in Dynamic Tests

D4238 Test Method for Electrostatic Propensity of Textiles (Withdrawn 1996)³

D4466 Terminology Related to Multicomponent Textile Fibers

D4724 Test Method for Entanglements in Filament Yarns by Needle Insertion

D4848 Terminology Related to Force, Deformation and Related Properties of Textiles

D4849 Terminology Related to Yarns and Fibers

D4911 Tolerances for Yarns Made of Man-Made Fibers and Spun on the Parallel Worsted or Modified Worsted System (Withdrawn 2000)³

D5103 Test Method for Length and Length Distribution of Manufactured Staple Fibers (Single-Fiber Test)

D5104 Test Method for Shrinkage of Textile Fibers (Single-Fiber Test)

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

D5344 Test Method for Extension Force of Partially Oriented Yarn

D5647 Guide for Measuring Hairiness of Yarns by the Photo-Electric Apparatus

D6197 Test Method for Classifying and Counting Faults in Spun Yarns in Electronic Tests

D6587 Test Method for Yarn Number Using Automatic Tester

D6612 Test Method for Yarn Number and Yarn Number Variability Using Automated Tester

D6774 Test Method for Crimp and Shrinkage Properties for Textured Yarns Using a Dynamic Textured Yarn Tester (Withdrawn 2019)³

3. Terminology

3.1 Alphabetical listings of terms with subcommittee 13.58 jurisdiction and attribution for each term.

American grain count, *n*—a direct yarn numbering system for expressing linear density, equal to the mass in grains per 120 yards of sliver or roving. **D2260**

bad/good test (%BGT), *n*—an index value which shows the total spread, or greatest variation, for the test; mathematically, the difference between the highest and lowest mass readings determined in the test, expressed as a percentage of the average mass. **D6612**

beam, *n*—*in textiles*, a large spool containing many ends of yarn wound parallel, and used for such purposes as weaving or warp knitting. **D2258**

beam set, *n*—*in textiles*, one or more beams of yarn in a single shipment to be further processed together for a specific end use. **D2258**

bench marks, *n*—marks placed on a specimen to define gage length, that is, the portion of the specimen that will be evaluated in a specific test. **D76**

boundary friction, *n*—friction at low sliding speeds (0.02 m/min or less) where lubrication occurs under thin-film lubricant conditions. **D3412**

broken filament, *n*—*in multifilament yarn*, breaks in one or more filaments. **D3990**

bulk sample, *n*—*in the sampling of bulk material*, one or more portions which (1) are taken from material that does not consist of separately identifiable units and (2) can be identified after sampling as separate or composited units. **D2258**

bulk shrinkage, *n*—a measure of potential stretch and power of stretch yarns or a measure of bulk of textured-set yarns. **D4031**

bunch, *n*—a defect in a yarn characterized by a segment not over 6 mm (¼ in.) in length that shows an abrupt increase in diameter caused by more fibers matted in this particular place. (See **slug**, **slub**.) **D2255**

cable twist, *n*—the construction of cabled yarn, cord, or rope in which each successive twist is in the opposite direction to the preceding twist; an S/Z/S or Z/S/Z construction. **D1423**

calibrate, *v*—to determine and record the relationship between a set of standard units of measure and the output of an instrument or test procedure.

DISCUSSION—This term is also commonly used to describe the checking of previously marked instruments, an operation more properly described as a description of verification. **D76**

capacity, *n*—*for tensile testing machines*, the maximum force for which the machine is designed.

DISCUSSION—Capacity is the maximum force the tester-frame and the drive system can exercise on the specimen without inadmissible deformations of the tester-frame, etc. Within its capacity, there are available load-cells with different full-scale ranges which may be chosen to select an appropriate full-scale range for a special test. **D76**

case, *n*—*in textiles*, a shipping unit, usually a carton, box, bale, or other container holding a number of yarn packages. **D2258**

clamp, *n*—that part of a testing machine used to grip the specimen by means of suitable jaws. **D76**

cockles, *n*—*in yarns*, irregular, thick, uneven lumps. **D2255**

coefficient of friction, *n*—the ratio of the tangential force that is needed to maintain uniform relative motion between two contacting surfaces to the perpendicular force holding them in contact. **D3108**, **D3412**