



## Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method<sup>1</sup>

This standard is issued under the fixed designation D1907/D1907M; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

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

### 1. Scope

1.1 This test method covers the determination of the linear density of all types of yarn in package form, subject to the limitations of size and stretch given in 1.2 and 1.3. Provision is made for expressing yarn linear density in all the traditional yarn numbering systems.

1.2 This test method is applicable to yarns that stretch less than 5 % when tension on the yarn is increased from 0.25 to 0.75 cN/tex [0.25 to 0.75 gf/tex]. By mutual agreement, and use of a lower than specified reeling tension, this method may also be adapted to measure the linear density of yarns that stretch more than 5 %, under the above force.

1.3 This method is applicable to yarns finer than 2000 tex. However, it may be also adapted to coarser yarns by the use of skeins of shorter than specified lengths, and alternate reeling conditions, agreeable to the interested parties.

1.4 Depending on the procedure used to calculate the moisture content of the yarn being tested, and its actual moisture content, or finish content, or both, one or more of the following options may be utilized.

1.4.1 *Unscoured Yarn: Option 1*—Yarn at equilibrium with the standard atmosphere for testing textiles.

*Option 2*—Oven-dried yarn.

*Option 3*—Oven-dried yarn, plus commercial moisture regain.

1.4.2 *Scoured Yarn: Option 4*—Scoured yarn at equilibrium with the standard atmosphere for testing textiles.

*Option 5*—Oven-dried, scoured yarn.

*Option 6*—Oven-dried, scoured yarn, plus commercial moisture regain.

*Option 7*—Oven-dried, scoured yarn, plus commercial allowance (commercial moisture regain, plus an allowance for finish).

1.5 Specimens used to determine yarn linear density may also be used to determine the skein breaking strength of the

yarn. Hence, this method provides the sequence of steps to be followed, to determine both these yarn properties.

NOTE 1—The linear density of yarns produced with jute, or glass, may also be determined by the following approved methods: Specifications D541, D578, and D681. The linear density of short yarn segments, raveled from fabrics, may be determined by Test Method D1059.

1.6 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.7 *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>

D123 Terminology Relating to Textiles

D541 Specification for Single Jute Yarn (Withdrawn 1996)<sup>3</sup>

D578 Specification for Glass Fiber Strands

D681 Specification for Jute Rove and Plied Yarn for Electrical and Packing Purposes (Withdrawn 2000)<sup>3</sup>

D1059 Test Method for Yarn Number Based on Short-Length Specimens (Withdrawn 2010)<sup>3</sup>

D1578 Test Method for Breaking Strength of Yarn in Skein Form

D1909 Standard Table of Commercial Moisture Regains for Textile Fibers

D2257 Test Method for Extractable Matter in Textiles

D2258 Practice for Sampling Yarn for Testing

D2494 Test Method for Commercial Mass of a Shipment of Yarn or Manufactured Staple Fiber or Tow

D4849 Terminology Related to Yarns and Fibers

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.58 on Yarns and Fibers.

Current edition approved July 1, 2012. Published August 2012. Originally approved in 1961 T. Last previous edition approved in 2007 as D1907 – 07. DOI: 10.1520/D1907\_D1907M-12.

<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.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).