



Designation: D 5104 – 9602

Standard Test Method for Shrinkage of Textile Fibers (Single-Fiber Test)¹

This standard is issued under the fixed designation D 5104; 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 This test method is under the jurisdiction of ASTM Committee D 13 on Textiles and is the direct responsibility of Subcommittee D13.58 on Yarn and Fiber Test Methods. Current edition approved Sept. 10, 1996; 2002. Published January 1997; November 2002. Originally published as D 5104 – 90. Last previous edition D 5104 – 96.

1. Scope

1.1 This test method covers the measurement of the shrinkage of crimped or uncrimped single staple fibers when exposed to hot air or to near the boiling point of water.

NOTE 1—For shrinkage of fibers by the bundle test, refer to Test Method D 2102.

1.1.1 This test method is also used on staple fibers and filaments removed from tow or yarn.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in either system are not exact equivalents; therefore, each system must be used independently of the other.

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

2. Referenced Documents

2.1 ASTM Standards:

D 123 Terminology Relating to Textiles²

D 1577 Test Methods for Linear Density of Textile Fibers²

D 1776 Practice for Conditioning Textiles and Textiles for Testing²

D 2102 Test Method for Shrinkage of Textile Fibers (Bundle Test)²

D 2258 Practice for Sampling Yarn for Testing²

D 2904 Practice for Interlaboratory Testing of a Textile Test Method that Produces Normally Distributed Data²

D 3333 Practice for Sampling Man-Made Staple Fibers, Sliver, or Tow for Testing³

D 3888 Terminology Related to Open-End Spinning³

D 3990 Terminology Relating to Fabric Defects³

D 4849 Terminology Relating to Fibers and Yarns³

2.2 ASTM Adjuncts:

TEX-PAC⁴

3. Terminology

3.1 Definitions:

3.1.1 *shrinkage, n*—a decrease in one or more dimensions

3.1.1 For definitions of an object or material:

3.1.1.1 *Discussion*—In terms used in this test method, the decrease is in the length; however, in some cases, there is an increase in length rather than a decrease. This increase is referred to as a growth or negative shrinkage. *method: shrinkage, see Terminology D 4849.*

3.1.2 For definitions of other textile terms used in this test method, see Terminology standards D 123, D 3888, D 3990, and D 4849.

² Annual Book of ASTM Standards, Vol 07.01.

³ Annual Book of ASTM Standards, Vol 07.02.

⁴ PC Programs on floppy disks are available through ASTM. For a 3½-in. disk request PCN: 12-429040-18.