



Designation: D5866 – 12

Standard Test Method for Neps in Cotton Fibers¹

This standard is issued under the fixed designation D5866; 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 test method covers the measurement of the quantity and size of neps in cotton using various instruments.

1.2 This test method is intended for testing ginned cotton and cotton taken from various fiber processing stages.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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:*²

[D123 Terminology Relating to Textiles](#)

[D1441 Practice for Sampling Cotton Fibers for Testing](#)

[E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method](#)

[D7139 Terminology for Cotton Fibers](#)

3. Terminology

3.1 For all terminology related to D13.11, refer to Terminology [D7139](#).

3.1.1 The following terms are relevant to this standard: ginned lint, nep, sliver.

3.2 For all other terminology related to textiles, refer to Terminology [D123](#).

4. Summary of Test Method

4.1 A pre-weighed mass of cotton fibers is prepared per instrument manufacturer specifications. The instrument then quantifies the neps and measures the size (diameter) of each nep.

¹ This test method 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.

4.2 Test data shows the mean or average nep size and the total number of neps per unit mass.

5. Significance and Use

5.1 Entangled cotton fibers that form neps have two sources: those that occur naturally as the cotton fiber develops on the plant into lint that is ready to be harvested and those that occur from mechanical action in harvesting, ginning, cleaning, carding or from a combination of mechanical action.

5.2 This test method does not identify whether the neps counted and measured are a result of seed variety, environmental influences, type of harvesting, or a result of mechanical processing. However, this information can be obtained from studies where samples are taken from plants in the field before harvesting and ginning, before and after cleaning, and carding before spinning.

5.3 The measurement of nep size and quantity going into, and coming out of, a fiber processing stage are commonly used to make adjustments in the processing machinery to reduce or eliminate the generation of mechanical neps. Neps that remain in spun yarns have a direct influence on neps in fabrics. For almost all types of yarn or fabric, neps are considered defects.

5.4 This test method provides a consistent and repeatable measurement of fiber nep count and size. Check cotton samples supplied by the manufacturer are used to verify consistent measurement levels and laboratory-to-laboratory precision.

5.5 This test method is considered satisfactory for acceptance testing when the levels of the laboratories are controlled by the use of the same reference standard cotton samples because the current estimates of between-laboratory precision are acceptable under these conditions. If there are differences of practical significance between reported test results for two laboratories or more, comparative tests should be performed to determine if there is a statistical bias between them using competent statistical assistance. At a minimum, ensure the test samples to be used are as homogeneous as possible, are drawn from the material from which the disparate test results were obtained, and are randomly assigned in equal numbers to each laboratory for testing. The test from the two laboratories should be compared using a statistical test for unpaired data, at a probability level chosen prior to the testing series. If a bias is