



Standard Tolerances for Yarns Spun on the Woolen System¹

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1. Scope

1.1 These tolerances are applicable to all yarns spun on the woolen system and composed of any fiber or mixture of fibers, even though there might not be any wool present in the yarn.

NOTE 1—For tolerances for other spun yarns, see Tolerances D2645.

2. Referenced Documents

2.1 ASTM Standards:²

D123 Terminology Relating to Textiles

D1422 Test Method for Twist in Single Spun Yarns by the Untwist-Retwist Method

D1423 Test Method for Twist in Yarns by Direct-Counting

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

D2256 Test Method for Tensile Properties of Yarns by the Single-Strand Method

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

D2645 Tolerances for Yarns Spun on the Cotton or Worsted Systems

D4849 Terminology Related to Yarns and Fibers

3. Terminology

3.1 For terminology related to yarn test methods, refer to Terminology D4849.

3.2 For definitions of other terms, refer to Terminology D123.

4. Sampling

4.1 Take samples as directed in the applicable material specification, or as agreed upon by the purchaser and the

supplier. In the absence of an applicable specification or other agreement, proceed as directed in Practice D2258.

5. Tolerances

5.1 *Strength*—The average breaking force of each lot shall be equal to or greater than the specified minimum average.

5.2 *Yarn Number*—The average yarn number shall be within the following tolerances:

	Deviation from the Specified Yarn Number, %
500 tex or 0.6 woolen run to 165 tex or 1.86 woolen run	± 7.5
Finer than 165 tex or 1.86 woolen run	± 5.0

5.3 Twist:

5.3.1 The direction of twist in each package or end shall be S or Z, as specified.

5.3.2 The average twist shall conform to the limits: specified value ± 7.5 % of the specified value.

5.3.3 The average twist of the package containing the highest average twist shall not be higher than that of the package containing the lowest average twist by more than 15.0 % of the lower average.

5.4 *Extractable Matter*—The average percent extractable matter shall not exceed the following values:

	%
Dry-spun	2.0
Oil-spun, semi-scoured	15.0
Oil-spun scoured:	
Blends, 50 % wool or less	4.0
All wool or more than 50 % wool	10.0

5.5 *Commercial Mass*—In the absence of other contractual agreements, the invoice mass, that is the commercial mass as adopted in a specific branch of the textile trade and as determined by the supplier, shall not exceed the commercial mass as determined by the purchaser, by more than 1 %. In branches of the textile trade which use the net mass as the commercial mass, the latter is subject to the same limitation.

NOTE 2—Particular attention is drawn to the results of an interlaboratory test described in Section 10 of Test Method D2494.

6. Test Methods

6.1 *Strength*—Determine the breaking force by Test Method D1578 or Test Method D2256, as agreed or specified.

6.2 *Yarn Number*—Determine the yarn number by Test Method D1907, using Option 1, 3, or 6 as agreed or specified.

¹ These tolerances are under the jurisdiction of ASTM Committee D13 on Textiles and are the direct responsibility of Subcommittee D13.58 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.

6.3 *Twist*—Determine the twist by Test Method **D1423**, or, by agreement (for single yarns only), Test Method **D1422**.

6.4 *Extractable Matter*—Determine the percent of extractable matter by Test Method **D2257** soxhlet extraction.

6.5 *Mass*—Determine the net mass and, if required, the commercial mass of the shipment by Test Method **D2494**.

7. Conformance

7.1 The purchaser and the supplier may agree on a procedure to establish conformance, including control charts furnished by the supplier, a sequential-sampling plan, or the double-sampling plan outlined in **7.2**.

7.2 In the absence of a control-chart or sequential-sampling plan, proceed as directed in **7.2.1-7.2.3**.

7.2.1 If the test results for the lot conform to the tolerances for all characteristics specified in Section **5**, consider the lot a valid delivery.

7.2.2 If the test results for one or more characteristics do not conform to the tolerances, take a new laboratory sample from either the original lot sample or a new lot sample. Retest the lot for the characteristic(s) that did not conform to the tolerances in the first test, and average the results of the first and second samples as if all results were from one test of double the original number of specimens. If the new average(s) conform(s) to the specified tolerances, consider the lot a valid delivery.

7.2.3 If the test results obtained as directed in **7.2.2** do not conform to the specified tolerances, consider the lot a nonvalid delivery.

8. Keywords

8.1 tolerances; woolen system; yarn

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