



Designation: D 2497 – 01

Standard Tolerances for Manufactured Organic-Base Filament Single Yarns¹

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1. Scope

1.1 These tolerances cover first-quality, manufactured, organic-base filament single yarns (namely, bright, semi-dull, dull, solution-dyed, bleached, unbleached, etc.) regardless of the package type. These tolerances cover permissible variations in linear density, tenacity, elongation, twist, and commercial weight.

1.1.1 These tolerances do not apply to rubber yarns, spandex yarns, metal-covered yarns, nor to bulk yarns since test methods for these types of yarn are not available. These tolerances do not apply to industrial filament yarns.

NOTE 1—Tolerances for inorganic glass yarns are given in Specifications and Methods D 578.

1.2 This standard covers only tolerances. It does not cover specifications or quality levels, for yarns to be used for any purpose. Specifications for specific properties are subject to agreement by the purchaser and the supplier.

NOTE 2—While the tolerances specified may be applied to yarn taken from fabric, the properties of such yarns will likely differ from the original level.

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 578 Specification for Glass Fiber Strands²
- D 1423 Test Method for Twist in Yarns by Direct-Counting²
- D 1907 Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method²
- D 2256 Test Method for Tensile Properties of Yarns by the Single-Strand Method²

¹ These tolerances are under jurisdiction of ASTM Committee D13 on Textiles, and are the direct responsibility of Subcommittee D13.58 on Yarn Test Methods, General.

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² *Annual Book of ASTM Standards*, Vol 07.01.

D 2258 Practice for Sampling Yarn for Testing²

D 2494 Test Method for Commercial Mass of a Shipment of Yarn or Man-Made Staple Fiber or Tow²

3. Terminology

3.1 Definitions:

3.1.1 *tolerances, n*—in mathematics, prescribed limits of variation for specified properties of a particular material based on observed values obtained by specified test methods and on samples that are representative of the material.

3.1.2 For definitions of other terms used in these tolerances, refer to Terminology D 123.

4. Significance and Use

4.1 These tolerances may be used as a guide in purchaser/supplier disputes, or to assist in assigning nominal values for linear density and twist. The tolerances listed for each property represent the maximum variations deemed acceptable in the trade.

5. Test Methods

5.1 Take a sample of yarn as directed in Practice D 2258. Make the indicated tests as directed in Test Method D 1907 for Yarn Number, Test Method D 1423 for Direct Twist, Test Method D 2256 for Single Strand Breaking Strength, and Test Method D 2494 for Commercial Mass.

6. Tolerances

6.1 *Linear Density*—The average linear density shall conform to the average linear density agreed upon between the purchaser and the supplier with the tolerances specified in Table 1.

6.2 *Strength*—The average breaking force of the yarn determined in single strand tests or the average force at a specific level of elongation, in each packing case of ten or more yarn packages or on a beam, shall be equal to or exceed the previously agreed upon level.

6.3 *Elongation*—The average elongation of the yarn at the breaking force or at a specified force, in each packing case of ten or more yarn packages or on a beam, shall conform to the limits: specified elongation $\pm 20\%$ of the specified average elongation.

6.4 *Twist*: