Designation: D 5446 – 01

Standard Practice for Determining Physical Properties of Fabrics, Yarns, and Sewing Thread Used in Inflatable Restraints[1]

This standard is issued under the fixed designation D 5446; 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 standard is a listing of the test methods commonly employed in determining the physical properties of fabrics and yarns used in the manufacture of inflatable restraints.

1.2 Fabrics used in the manufacture of inflatable restraints may be coated or uncoated, and may be comprised of spun yarns, continuous filament yarns, or a combination thereof.

1.3 Fabrics used in the manufacturer of inflatable restraints may be either flat or one piece woven. For the one-piece woven, follow the sampling section of D 5446 and the individual test method.

1.4 In Section 9, this standard lists is alphabetical order the procedures associated with conducting physical testing of the following fabric or yarn properties of concern to the design and manufacture of inflatable restraints.

Yarn	Section
Denier (Yarn Number)	9.3.1
Fiber Content	9.3.2
Finish (Extractable Material)	9.3.3
Strength and Elongation	9.3.4
Twist	9.3.5
Fabric	
Air Permeability	9.3.6
Abrasion Resistance	9.3.7
Blocking	9.3.8
Bow and Skew	9.3.9
Breaking Force & Elongation	9.3.10
Burst Strength	9.3.11
Coating Adhesion	9.3.12
Coating Weight	9.3.13
Count of Woven Fabric	9.3.14
Dynamic Air Permeability	9.3.28
Edgecomb Resistance	9.3.29
Flammability	9.3.15
Fogging (Volatility)	9.3.16
Length	9.3.17
Mass per Unit Area	9.3.18
Non-Fibrous Material	9.3.19
Odor	9.3.20
Packability	9.3.30
pH	9.3.21
Stiffness	9.3.22
Tear Strength	9.3.23
Thickness	9.3.24
Warp Size Content & Residual Sizing	9.3.25
Width	9.3.26
Thread	
Sewing Thread	9.3.27

1.5 This standard may be used in conjunction with Practice D 5427 which prescribes standard practices for the accelerated aging of inflatable restraint fabrics when comparative results of physical properties before and after accelerated aging are required.

1.6 Procedures and apparatus other than those stated in this standard may be used by agreement of purchaser and supplier with the specific deviations from the standard practice acknowledged in the report.

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

1.8 *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.* See Note 3.

2. Referenced Documents

2.1 *ASTM Standards:*

D 123 Terminology Relating to Textiles[1]
D 204 Test Methods for Sewing Thread[2]
D 276 Test Methods for Identification of Fibers in Textiles[2]
D 737 Test Method for Air Permeability of Textile Fabrics[2]
D 751 Test Methods for Testing Coated Fabric[1]
D 1059 Test Method for Yarn Number Based on Short-Length Specimens[2]
D 1388 Test Methods for Stiffness of Fabrics[2]
D 1422 Test Method for Twist in Yarns by the Untwist Retwist Method[2]
D 1423 Test Method for Twist in Yarns by Direct Count Method[2]
D 1777 Test Method for Measuring Thickness of Textile Materials[2]
D 1907 Test Method for Yarn Number by the Skein Method[2]
D 2256 Test Method for Tensile Properties of Yarns by the Single Strand Method[2]
D 2257 Test Method for Extractable Matter in Textiles[2]
D 2261 Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Extension Tensile Testing Machine)[2]
D 3773 Test Method for Length of Woven Fabric[1]
D 3774 Test Method for Width of Woven Fabric[4]
D 3775 Test Method for Fabric Count of Woven Fabric[4]

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States.