Designation: D 578 – 00

Standard Specification for Glass Fiber Strands[1]

This standard is issued under the fixed designation D 578; 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 specification covers the requirements for continuous fiber and staple fiber glass strands, including single, plied and multiple wound. It also covers textured glass fiber yarns.

1.2 Glass fibers are produced having various compositions. General applications are identified by means of a letter designation. The letter designation represents a family of glasses that have provided acceptable performance to the end-user in the intended application. For example, the composition limits stated for E-Glass in this specification representing the glass fiber family for general and most electrical applications is designated by the letter *E*. Military specifications, such as, MIL-R-60346, recognize the composition limits described in this specification as meeting the respective requirements for E-Glass strands used in reinforced plastic structure applications. This specification is intended to assist ultimate users by designating the general nomenclature for the strand products that are generally manufactured in the glass fiber industry.

1.3 Glass fiber strands have a variety of general uses under specific conditions, such as high physical or chemical stress, high moisture, high temperature, or electrical environments. Property requirements under specific conditions are agreed upon between the purchaser and the supplier. Electrical property requirements vary with specific end-use applications. For printed circuit board applications, other requirements may be needed such as the use of Institute for Interconnecting and Packaging Electronic Circuits (IPC) Specification EG-140 for finished fabric woven from E-Glass for printed circuit boards, or Specification MIL-P-13949 for printed wiring boards applicable to glass fabric base.

1.4 This specification shows the values in both SI units and inch-pound units. "SI" units is the technically correct name for the system of metric units known as the International System of Units." Inch-pound units" is the technically correct name for the customary units used in the United States. The values stated in either acceptable metric units or in other units shall be regarded separately as standard. The values expressed in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining in any way.

1.5 This specification is one of a series to provide a substitute for Military Specifications: MIL-Y-1140 Yarn, Cord, Sleeving, Cloth and Tape-Glass; and MIL-C-9084 Cloth, Glass Finished for Resin Laminates.

1.6 Additional ASTM specifications in this series have been drafted and appear in current editions of the *Annual Book of ASTM Standards*. These include finished glass fabrics, unfinished glass fabrics, glass tapes, glass sleevings, glass cords, glass sewing threads, and finished laminates made from finished glass fabrics.

1.7 *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 76 Specification for Tensile Testing Machines for Textiles[2]

D 123 Terminology Relating to Textiles[2]

D 1423 Test Method for Twist in Yarns by Direct Counting[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 2258 Practice for Sampling Yarn for Testing[2]

D 2904 Practice for Interlaboratory Testing of a Textile Test Method that Produces Normally Distributed Data[2]

D 2906 Practice for Statements on Precision and Bias for Textiles[2]

D 4963 Test Method for Ignition Loss of Glass Strands and Fabrics[3]

E 171 Specification for Standard Atmospheres for Conditioning and Testing Flexible Barrier Materials[4]

2.2 *ASTM Adjunct:*

TEX-PAC[5]

2.3 *American National Standards:*[6]

[1] This specification is under the jurisdiction of ASTM Committee D-13 on Textiles and is the direct responsibility of Subcommittee D13.18 on Glass Fiber and Its Products.

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

[3] *Annual Book of ASTM Standards*, Vol 07.02.

[4] *Annual Book of ASTM Standards*, Vol 15.09.

[5] PC programs on floppy disk for analyzing Committee D-13 interlaboratory data are available through ASTM. Request ADJD2904.

[6] Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

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