



Standard Terminology Relating to Glass Fiber and Its Products¹

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1. Scope

1.1 This standard is a compilation of terminology developed by Committee D13.18 on Glass Fiber and its Products.

1.2 This terminology is unique to glass fibers, strands, yarns, fabrics, etc. in the glass textile industry. Terms that are generally understood or adequately defined in other readily available sources are not included.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.4 Subcommittee D13.18 has jurisdictional responsibility for standards and terminology in this standard. Any change in wording requires the approval of D13.18 subcommittee. Any changes approved by the subcommittee and main committee are then directed to subcommittee D13.92 on Terminology for inclusion in Terminology D123.

2. Referenced Documents

2.1 ASTM Standards:²

D578 Specification for Glass Fiber Strands

D579 Specification for Greige Woven Glass Fabrics

D580 Specification for Greige Woven Glass Tapes and Webbing

D581 Specification for Glass Fiber Greige Braided Tubular Sleaving

D3374 Specification for Vinyl-Coated Glass Yarns

D3656 Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns

D4028 Specification for Solar Screening Woven from Vinyl-Coated Fiber Glass Yarn

¹ This terminology is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.18 on Glass Fiber and its Products.

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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.

D4029 Specification for Finished Woven Glass Fabrics
D4030 Specification for Glass Fiber Cord and Sewing Thread

D4389 Specification for Finished Glass Fabrics Woven From Rovings

D4912 Test Method for Fabric Stability of Vinyl-Coated Glass Yarn Insect Screening and Louver Cloth

D4963 Test Method for Ignition Loss of Glass Strands and Fabrics

3. Terminology

3.1 *Definitions:* Alphabetical listing of terms for which Subcommittee D13.18 has jurisdiction:

atmosphere for testing textiles, *n*—*for glass*, air maintained at a relative humidity of at least 48 % and no greater than 67 %, and at a temperature of at least 20°C [68°F] and no greater than 25°C [77°F].

DISCUSSION—(*as related to all D13.18 standards*)—Glass textiles are used in various products such as reinforced plastics, mat-like material, tire cords, electrical insulation, etc. Each of these materials require different testing atmospheres. It is the intent of this wide spread in testing atmosphere to allow testing of glass textiles in respective laboratories where end product test atmosphere requirements differ. The test atmospheres for respective products should be controlled as specified in Specification E171. It is the opinion of Subcommittee D13.18 that the physical properties cited in respective specifications would not be affected by the range selected. In any event, the test atmosphere should be stated in the report.

blocking, *n*—*of coated fiber glass yarn solar screening*, an undesired adhesion between touching layers of a material. Such as occurs under moderate pressure, during storage or use.

braided, *n*—a narrow tubular or flat fabric produced by inter-twining a single set of yarns according to a definite pattern (Maypole process).

carrier, *n*—*in braiding machinery*, that part of a braiding machine that holds the package of yarn, thread, or cord, and carries the yarn when the machine is operated.

chopped strand, *n*—*in glass textiles*, a strand made for short predetermined lengths of cut continuous filament and used as a reinforcing material. (See also **strand**.)

color stability, *n*—in coated glass textiles, the ability of the applied coating to resist fading from exposure to sunlight and water.

continuous filament yarn, *n*—a yarn made of filaments that extend substantially throughout the length of the yarn.

cord, *n*—of glass fiber, a strand made by combining multiple ends of filament stands, including cabled yarns, primarily for structural application.

crowfoot weave, *n*—a broken-twill weave one-up and three-down or three-up and one-down with two ends to the right and two ends to the left, commonly referred to as 4-harness satin or broken crow.

DISCUSSION—(as related to Specifications D579 and D4029)—See Figure A1.1 in Annex for the basic weave diagram.

eight-harness satin, *n*—a warp-faced or filling-faced weave illustrating that the entire face of the fabric surface is covered with warp or filling yarn, respectively.

DISCUSSION—(as related to Specifications D579 and D4029)—There are no distinguishable diagonal lines. In warp-faced fabrics warp yarns show on the face of the fabric seven out of eight adjacent yarns, and in filling-faced fabrics filling yarns show on the face of the fabric seven out of eight adjacent yarns. See Figure A1.5 in Annex for the basic weave diagram.

fabric stability, *n*—in vinyl coated glass screening and louver cloth, the property denoting the ability to resist movement of yarn segments in one direction over yarn segments in the opposite direction.

DISCUSSION—(as related to Specification D3656 and Test Method D4912)—The movement of the yarns may be a result of weak bonds between crossing yarns as the coating is fused during manufacture.

finished, *adj*—for glass laminates, a descriptive term for woven fabrics that have passed through a treating procedure which is compatible with a resin matrix or facilitates manufacturing, or both.

greige goods, *n*—textile fabrics that have received no bleaching, dyeing, or finishing treatment after being produced by any textile process.

ignition loss, *n*—in glass textiles, the amount of organic material consumed by ignition.

insect screening, *n*—in coated glass yarn fabrics, a woven netting having an approximately even-spaced mesh of 12 by 12 yarns or more per 25 mm [1 in.].

leno weave, *n*—a weave in which two adjacent warp yarns cross each other between the picks.

DISCUSSION—(as related to Specifications D579 and D4029)—See Figure A1.3 in Annex for the basic weave diagram.

louver cloth, *n*—in coated glass yarn fabrics, a woven netting having an approximately even-spaced mesh of fewer than 12 by 12 yarns per 25 mm [1 in.].

mesh, *n*—in coated glass yarn fabrics, the number of warp yarns or ends per linear 25 mm [1 in.] followed by the number of filling yarns or picks per linear 25 mm [1 in.].

mock leno weave, *n*—a weave in which the warp yarns remain parallel but form open warp stripes by programmed interlacing of warp and filling yarns simulating a leno appearance.

DISCUSSION—(as related to Specifications D579 and D4029)—See Figure A1.4 in Annex for the basic weave diagram.

neoprene treated, *adj*—in glass fiber, a descriptive term for the application of polychloroprene rubber compound to improve the stability, knot holding properties, and abrasion resistance of the cord.

roving, *n*—in glass textiles, a multiplicity of filaments or yarns gathered together into an approximately parallel arrangement without twist.

DISCUSSION—in glass fibers, a roving represents two distinct forms of yarn bundles. Direct Draw roving is a distinct strand or bundle made up of continuous filaments having a similar diameter, which produce a specific yield that are produced directly from the fiber forming bushing at the furnace and wound onto a cylindrical package. Multi-end roving is a distinct strand or bundle made up of continuous filament individual input strands which when assembled in a secondary fabrication process and wound into a cylindrical package will produce a specific mass and yield.

shading coefficient, *n*—the ratio of the solar heat gain through a glazing system under a specific set of conditions to the solar gain through a single light of double-strength sheet glass under the same conditions.

DISCUSSION—(as related to Specification D4028)—This definition is from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE) Handbook of Fundamentals.

sleeving, *n*—braided, knitted, or woven fabric of cylindrical form having a width less than 100 mm [4 in.] (circumference less than 200 mm [8 in.]).

solar screening, *n*—of coated fiber glass yarn solar screening, a woven fabric that imparts a shielding or protection from light, heat, wind, and insects without excessive alteration or impairment of visual viewing, and that has a mesh in excess of 12 by 12 with a rib pattern in the warp direction formed by the weaving of two or more contiguous yarns with a minimum of space between such yarns followed by space equivalent to the width of one or more of the yarns in the rib.

staple glass yarn, *n*—yarn made from filaments that are nominally 200 to 300 mm [8 to 15 in.] in length.

tape, *n*—in textiles, a narrow fabric with a mass per unit area of less than 0.5 kg/m² [0.1 lb/ft²] for each 25.4 mm [1 in.] of width and which is used primarily for utilitarian purposes.

textured glass yarn, *n*—a yarn processed from continuous filament yarn in such a manner to induce bulk to the yarn by disorientation of the filaments.

tubing, *n*—braided, knitted, or woven fabric of cylindrical form having a width of 100 mm [4 in.] or more (circumference of 200 mm [8 in.] or more).

twelve-harness satin, *n*—a weave similar to eight-harness satin except in warp-faced fabrics warp yarns show on the face of the fabric eleven out of twelve adjacent yarns and in



filling-faced fabrics filling yarns show on the face of the fabric eleven out of twelve adjacent yarns.

DISCUSSION—(as related to Specifications D579 and D4029)—See Figure A1.6 in Annex for the basic weave diagram.

twist balance, *n*—in glass fiber cord and sewing thread, the relationship of primary and final twist to each other and to the cord size such that residual torsional effects are nullified.

untreated, *adj*—a descriptive term for glass fiber yarns having no applied chemicals or coatings, other than the minimal lubricant or binder used to control intra-fiber abrasion.

vinyl-coated glass yarn, *n*—glass continuous filament yarn, coated with a pigment and plasticized vinyl chloride resin.

webbing, *n*—in textiles, a stout narrow fabric with a mass per unit area of at least 0.5 kg/m² [0.1 lb/ft²] for each 25.4 mm [1 in.] of width.

wrap-in, *n*—in vinyl-coated glass yarns, a method of completing a package after a break by wrapping the two ends together on the package without splicing or tying a knot.

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