



Standard Specification for Coated Glass Fabrics Used for Electrical Insulation¹

This standard is issued under the fixed designation D 3949; 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 woven glass fabric coated with fully cured oleoresinous varnish, epoxy resin, polyurethane resin, or polyester resin. Excluded are coated polyester-glass fabric and glass fabric coated with silicone resins and silicone elastomers.

1.2 It is recognized that several properties, notably breaking strength and dielectric strength, are related to the style of base fabric used for any particular thickness. This specification has been developed for materials using fabrics woven from relatively coarse-filament yarns and in some cases from relatively open-weave constructions, and property values are frequently somewhat lower than if finer filament yarns or closer weave constructions were used. The user is therefore alerted that significantly higher levels of performance test values may be obtained through the use of these latter types of alternate base constructions.

1.3 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standards:

- D 902 Test Methods for Flexible Resin-Coated Glass Fabrics and Glass Fabric Tapes Used for Electrical Insulation²
- D 1711 Terminology Relating to Electrical Insulation²
- D 1830 Test Method for Thermal Endurance of Flexible Sheet Materials Used for Electrical Insulation by the Curved Electrode Method²
- D 2518 Specification for Woven Glass Fabrics for Electrical Insulation³
- D 3636 Practice for Sampling and Judging Quality of Solid Electrical Insulating Materials³

3. Terminology

3.1 *Definitions:* For definitions of terms used in this specification refer to Terminology D 1711.

¹ This specification is under the jurisdiction of ASTM Committee D-9 on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee D09.07 on Flexible and Rigid Insulating Materials.

Current edition approved Oct. 10, 1999. Published November 1999. Originally published as D 3949 – 80. Last previous edition D 3949 – 94.

² *Annual Book of ASTM Standards*, Vol 10.01.

³ *Annual Book of ASTM Standards*, Vol 10.02.

4. Classification

4.1 The materials of this specification are identified according to the type of coating applied, as follows:

- 4.1.1 *Type 1*—Black oleoresinous varnish,
- 4.1.2 *Type 2*—Yellow oleoresinous varnish,
- 4.1.3 *Type 3*—Epoxy resin,
- 4.1.4 *Type 4*—Polyurethane (isocyanate) resin, and
- 4.1.5 *Type 5*—Polyester resin.

5. Ordering Information

5.1 Orders for material covered by this specification shall include the following:

- 5.1.1 Type of coating,
- 5.1.2 Nature of finish, if any (waxy, greasy, dry, oily, mica-dusted, and so forth),
- 5.1.3 Color of coating (oleoresinous only),
- 5.1.4 Nominal coated thickness and base fabric thickness,
- 5.1.5 Put-up,
 - 5.1.5.1 *Full-Width Rolls*—core size, trimmed or untrimmed, length and width,
 - 5.1.5.2 *Sheets*—length and width,
 - 5.1.5.3 *Tapes*—core size, length, width,
- 5.1.6 Number of units per package,
- 5.1.7 Type of packaging (sealed unit packages, carton size, pallet size), and
- 5.1.8 Marking on unit packages and cartons.

6. Materials and Manufacture

6.1 *Materials*—The base fabric for all thicknesses shall be woven from continuous-filament yarns and shall be in conformance with the requirements of Specification D 2518.

6.2 *Splices*—The material shall not be spliced unless agreed upon by the purchaser and seller. If it is necessary to splice rolls, splices shall occur not more than once in each 100 yd (92 m) or less, except that rolls having a length of 10 yd (9 m) or less shall contain no splices. Sheet materials shall contain no splices.

7. Electrical and Mechanical Requirements

7.1 The electrical and mechanical requirements shall be in accordance with the values shown in Tables 1-3.