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Standard Methods of Testing ELECTRICAL INSULATING VARNISHES FOR 180°C AND ABOVE¹

This standard is issued under the fixed designation D 1346; 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.

^{e1} NOTE—Section 2 was added editorially and subsequent sections renumbered in February 1985.

1. Scope

1.1 These methods cover tests for impregnating and coating varnishes primarily intended to provide electrical, mechanical, and chemical protection for electrical equipment operating at 180°C and above. They are designed for applications where some flexibility is required in service. The cured varnish is intended to have a life exceeding 25 000 h at 180°C when determined in accordance with Test Method D 1932.

1.2 The test procedures appear in the following order:

Procedure	Section	ASTM Method Reference
Flash Point	3 to 6	D 56
Nonvolatile Matter	7	D 115 modified
Specific Gravity	8 to 9	...
Specimen preparation	11 to 22	D 580
Build	14 to 18	D 374 modified
Drying Time	19 to 22	D 115 modified
Drainage	23 to 27	...
Dielectric Strength	28 to 31	D 149, D 295, E 104
Thermal Endurance	32 to 33	D 1932 modified

2. Applicable Documents

2.1 ASTM Standards:

D 56 Test Method for Flash Point by Tag Closed Tester²

D 115 Methods of Testing Varnishes Used for Electrical Insulation³

D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies⁴

D 295 Methods of Testing Varnished Cotton

Fabrics Used for Electrical Insulation³

D 374 Test Methods for Thickness of Solid Electrical Insulation⁴

D 580 Methods of Testing and Tolerances for Woven Glass Tapes⁵

D 1932 Test Method for Thermal Endurance of Flexible Electrical Insulating Varnishes³

D 2518 Specification for Woven Glass Fabrics for Electrical Insulation³

E 104 Recommended Practice for Maintaining Constant Relative Humidity by Means of Aqueous Solutions⁶

FLASH POINT

3. Definition

3.1 *flash point*—the lowest temperature at which the varnish sample ignites even momentarily on the application of a flame under specified conditions.

4. Significance and Use

4.1 The flash point indicates the temperature limit to which a varnish may be heated or stored without presenting a fire hazard. **Caution—Do**

¹ These methods are under the jurisdiction of Committee D-9 on Electrical Insulating Materials and are the direct responsibility of Subcommittee D09.01 on Electrical Insulating Varnishes, Powders, and Encapsulating Compounds.

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² Annual Book of ASTM Standards, Vol 05.01.

³ Annual Book of ASTM Standards, Vol 10.01.

⁴ Annual Book of ASTM Standards, Vol 10.02.

⁵ Annual Book of ASTM Standards, Vol 07.02.

⁶ Annual Book of ASTM Standards, Vols 10.01, 10.02, and 11.03.