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AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Test Method for Weight Loss of Electrical Insulating Varnishes[1]

This standard is issued under the fixed designation D 2756; 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 test method covers the measurement of the loss in weight of cured electrical insulating varnishes on exposure to elevated temperature in air.

1.2 The values stated in SI units are the standard.

1.3 *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.* For specific precaution statements, see Section 7.

2. Referenced Documents

2.1 *ASTM Standards:*

D 115 Test Methods for Testing Solvent Containing Varnishes Used for Electrical Insulation[2]

D 1711 Terminology Relating to Electrical Insulation[2]

D 1932 Test Method for Thermal Endurance of Flexible Electrical Insulating Varnishes[2]

D 2518 Specification for Woven Glass Fabrics for Electrical Insulation[3]

D 5423 Specification for Forced-Convection Laboratory Ovens for Evaluation of Electrical Insulation[3]

3. Terminology

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

4. Summary of Test Method

4.1 Specimens are prepared by coating glass cloth with varnish to be tested. The specimens are aged at elevated temperatures and the loss in weight is determined after a specific time.

5. Significance and Use

5.1 Weight loss is useful for indicating:

5.1.1 A form of degradation at elevated temperatures in air, and

5.1.2 Evolution of volatiles which may affect other components.

6. Apparatus

6.1 *Air-Circulating Oven*, capable of meeting the requirements of Specification D 5423, Type II.

6.2 *Glass Cloth*, heat-cleaned, Style No. 116, as described in Specification D 2518.

6.3 *Balance*, capable of weighing to nearest 0.001 g.

6.4 *Desiccator Jar*, with a suitable desiccant.

7. Safety Precautions

7.1 Varnish should not be used at temperatures above the flash point when inadequate ventilation and the possibility of flames or sparks exist. Varnish should be stored in sealed containers. The precautions shall also apply to the handling of the called for reagents and solvents.

8. Sampling

8.1 Sample the varnish in accordance with Test Methods D 115.

9. Test Specimens

9.1 Prepare the test specimens as described in Test Method D 1932. Make one panel for each test temperature. Use an average of ten readings to determine the thickness of the panels.

9.2 Cure the varnish in accordance with manufacturer's requirements.

9.3 Cut two specimens, 100 by 125 mm (4 by 5 in.) from each panel to be used for the tests.

9.4 Cut an uncoated piece of cloth, 100 by 125 mm (4 by 5 in.)

10. Procedure

10.1 Dry two cured specimens for each test temperature and one uncoated specimen for 2 h at 110°C (230°F). Place them in a desiccator and allow them to cool to room temperature. Weigh each specimen to the nearest 0.001 g. The weight of the coated specimen will be the initial weight.

10.2 Subtract the weight of the uncoated specimen from the weight of each coated specimen. This is the initial weight of the varnish solids on which the percent weight loss is based.

10.3 Select at least four temperatures between 150°C (300°F) and 250°C (480°F) for weight loss aging. Suggested temperatures are: 150°C (300°F), 200°C (390°F), 220°C

[1] This test method is under the jurisdiction of ASTM Committee D-9 on Electrical and Electronic Insulating Materials and is 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 10.01.

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