Designation: D1039 – 16

Standard Test Methods for Glass-Bonded Mica Used as Electrical Insulation[1]

This standard is issued under the fixed designation D1039; 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 These test methods cover the evaluation of the characteristics of glass-bonded, natural, or synthetic mica materials intended for use as electrical insulation.

1.2 Glass bonded mica materials are commercially available in both injection molded and compression molded types. These test methods are applicable to both types except for tensile strength methods. (See Section 41.)

1.3 The test methods appear in the following sections:

Test Method	Section	ASTM Test Method
Arc Resistance	57 – 59	D495
Compressive Strength	33 – 35	D695
Conditioning	5	D618
Dielectric Strength	48 – 51	D149
Dissipation Factor	43 – 47	D150 and D2149
Heat Distortion Temperature	24 – 29	D648
Impact Resistance	36 – 39	D256
Modulus of Rupture	30 – 32	D790 and C674
Permittivity	43 – 47	D150 and D2149
Porosity	13 – 16	D116
Resistivity, Volume and Surface	52 – 56	D257
Rockwell Hardness	10 – 12	D785
Specific Gravity	6 – 9	D792
Specimens	4	
Tensile Strength	40 – 42	D638 and D651
Terminology	3	D1711
Thermal Conductivity	17 – 19	C177 and E1225
Thermal Expansion	20 – 23	E228 and E289
Thickness	49 and 54	D374

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *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.* See also Sections 45, 49, 54, and 58.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

C674 Test Methods for Flexural Properties of Ceramic Whiteware Materials

D116 Test Methods for Vitrified Ceramic Materials for Electrical Applications

D149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

D150 Test Methods for AC Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulation

D256 Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics

D257 Test Methods for DC Resistance or Conductance of Insulating Materials

D374 Test Methods for Thickness of Solid Electrical Insulation (Metric) D0374_D0374M

D495 Test Method for High-Voltage, Low-Current, Dry Arc Resistance of Solid Electrical Insulation

D618 Practice for Conditioning Plastics for Testing

D638 Test Method for Tensile Properties of Plastics

D648 Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position

D651 Test Method for Test for Tensile Strength of Molded Electrical Insulating Materials (Withdrawn 1989)[3]

D695 Test Method for Compressive Properties of Rigid Plastics

D785 Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials

D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

[1] These test methods are under the jurisdiction of ASTM Committee D09 on Electrical and Electronic Insulating Materials and are the direct responsibility of Subcommittee D09.01 on Electrical Insulating 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.

[3] The last approved version of this historical standard is referenced on www.astm.org.

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