



Standard Methods of Testing POLYMERIZABLE EMBEDDING COMPOUNDS USED FOR ELECTRICAL INSULATION¹

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1. Scope

1.1 These methods cover electrical, mechanical, and thermal tests for polymerizable compounds used for encasing or embedding electrical and electronic components or assemblies. The procedures appear in the following sections:

Procedure	Sections	ASTM Method
Sampling	3	...
Specimen Preparation and Conditioning	4	D 618
Hardness	5 to 11	D 2240
Coefficient of Linear Thermal Expansion	12 to 18	D 696
Specific Gravity	19 to 26	D 792
Coefficient of Thermal Conductivity	27 to 33	...
Thermal Shock Resistance	34 to 39	...
Dielectric Constant and Dissipation Factor	40 to 48	...
Dielectric Strength	49 to 55	...
Arc Resistance	56 to 60	D 495
Effect of High Humidity	61 to 66	...
Flame Resistance (ignition time and burning time)	67	D 229
Dielectric Strength of Embedded Electrodes	68 to 75	D 149

1.2 The compounds must cure without pressure and may or may not require heat to accomplish the reaction. They are required to electrically insulate and mechanically protect and support the part or assembly without a case, pot, or other external reinforcement after curing.

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

2. Applicable Documents

2.1 ASTM Standards:

D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid

Electrical Insulating Materials at Commercial Power Frequencies²

D 150 Test Methods for A-C Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulating Materials²

D 229 Method of Testing Rigid Sheet and Plate Materials Used for Electrical Insulation³

D 374 Test Methods for Thickness of Solid Electrical Insulation²

D 495 Test Method for High-Voltage, Low-Current Dry Arc Resistance of Solid Electrical Insulation²

D 618 Methods of Conditioning Plastics and Electrical Insulating Materials for Testing²

D 696 Test Method for Coefficient of Linear Thermal Expansion of Plastics⁴

D 792 Test Methods for Specific Gravity and Density of Plastics by Displacement⁴

D 2240 Test Method for Rubber Property—Durometer Hardness⁵

E 197 Specification for Enclosures and Servicing Units for Tests Above and Below Room Temperature⁶

3. Sampling

3.1 Because of the diverse nature of the com-

These methods are under the jurisdiction of ASTM 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 10.02.

³ Annual Book of ASTM Standards, Vol 10.01.

⁴ Annual Book of ASTM Standards, Vol 08.01.

⁵ Annual Book of ASTM Standards, Vol 09.01.

⁶ Discontinued, see 1980 Annual Book of ASTM Standards, Part 12.