



Standard Test Methods for Copper-Clad Thermosetting Laminates for Printed Wiring Boards¹

This standard is issued under the fixed designation D5109; 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 procedures for testing copper-clad laminates produced from fiber-reinforced, thermosetting polymeric materials intended for fabrication of printed wiring boards.

1.2 The procedures appear in the following sections:

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1.3 Metric units are the preferred units for these test methods. Inch-pound units, where shown, are presented for information only.

1.4 *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 hazard statements, see 7.2.1, 8.1, and 11.3.1.

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 D09.07 on Flexible and Rigid Insulating Materials.

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2. Referenced Documents

2.1 ASTM Standards:²

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

D229 Test Methods for Rigid Sheet and Plate Materials Used for Electrical Insulation

D257 Test Methods for DC Resistance or Conductance of Insulating Materials

D374 Test Methods for Thickness of Solid Electrical Insulation (Withdrawn 2013)³

D618 Practice for Conditioning Plastics for Testing

D1531 Test Methods for Relative Permittivity (Dielectric Constant) and Dissipation Factor by Fluid Displacement Procedures (Withdrawn 2012)³

D1711 Terminology Relating to Electrical Insulation

D1825 Practice for Etching and Cleaning Copper-Clad Electrical Insulating Materials and Thermosetting Laminates for Electrical Testing (Withdrawn 2012)³

D1867 Specification for Copper-Clad Thermosetting Laminates for Printed Wiring

D3636 Practice for Sampling and Judging Quality of Solid Electrical Insulating Materials

E53 Test Method for Determination of Copper in Unalloyed Copper by Gravimetry

2.2 Other Standard:

NEMA Publication Number LI 1-1975 Test for Hot Peel Strength of Copper-Clad Industrial Laminates for Printed Circuits⁴

3. Terminology

3.1 *Definitions:* Definitions of terms used in these test methods are found in Terminology D1711.

3.2 *Definitions of Terms Specific to This Standard:*

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.

⁴ Available from National Electronic Manufacturer's Association (NEMA), 2101 L St., NW, Washington, DC 20037.

*A Summary of Changes section appears at the end of this standard