



Designation: D1711 – 26

Standard Terminology Relating to Electrical Insulation¹

This standard is issued under the fixed designation D1711; 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.

INTRODUCTION

This terminology is used in connection with testing and specifying solid electrical insulating materials. Modifications to this terminology, reflecting common usage, may appear in particular test methods, material specifications, practices, or other standards. Included herein are terms pertinent to general applications, electrical insulating papers, mica, mica processing, processed mica forms, hookup wire insulation, and partial discharge (corona).

1. Scope*

1.1 This terminology standard is a compilation of technical terms associated with testing and specifying solid electrical and electronic insulating materials.

1.2 This terminology standard shall contain all definitions that are balloted specifically through Subcommittee D09.94 and through D09 main committee and that are of general interest to standards associated with electrical and electronic insulating materials. Those definitions shall be of importance to electrical and electronic insulating materials issues but need not be directly associated with a specific standard under the jurisdiction of Committee D09 on Electrical and Electronic Insulating Materials.

1.3 It is intended that all definitions in this terminology standard originating in a specific standard under the jurisdiction of Committee D09 be identical to definitions of the same terms as printed in standards of originating technical subcommittees, with the exceptions of: (1) deletion of any part of the Discussion included in another standard that refers specifically to the use of a term in that standard; (2) figure numbers and corresponding references; and (3) in this terminology standard, a parenthetical addition of a reference to one or more technical standards in which the term is used and the year in which the term was added to this compilation.

1.3.1 Definitions contained in this terminology standard which did not originate in a specific standard under the jurisdiction of Committee D09, or which originated in a standard that has since been revised or withdrawn, and that

have been appropriately balloted, shall also be included in this terminology standard.

1.4 It is permissible to include symbols as part of the representation of terms, where appropriate.

1.5 It is not intended that this terminology standard include symbols (except as noted in 1.4). It is also permissible to include acronyms and abbreviations referring directly to defined terms.

1.6 Revisions and additions to those definitions in this terminology standard which originate in a specific standard under the jurisdiction of Committee D09 are to be made as a product of a collaborative effort between Subcommittee D09.94 and the corresponding technical subcommittee of Committee D09, with Subcommittee D09.94 providing editorial advice to the technical subcommittees.

1.7 Each definition in this terminology standard shall be accompanied by the year in which it was first incorporated into the standard, placed at the end in parentheses. All discussions shall also carry a date; it is possible that the discussion date is different from the definition date.

1.8 1.8.1 – 1.8.3 contain references to specific terminology standards that are relevant to specific electrical insulating materials or applications. In case of conflict between a definition contained in Terminology D1711 and one contained in another standard, the definition given in Terminology D1711 shall prevail.

1.8.1 For terms related to plastics, the applicable definitions are contained in Terminology D883.

1.8.2 For terms relating to fire, the applicable definitions are contained in Terminology E176 and ISO 13943. In case of conflict between Terminology E176 and ISO 13943, the definitions given in Terminology E176 shall prevail.

1.8.3 For terms relating to precision and bias and associated issues, the applicable definitions are contained in Terminology E456.

¹ This terminology is under the jurisdiction of ASTM Committee D09 on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee D09.94 on Editorial.

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

1.9 This international standard was developed in accordance with internationally recognized principles on standardization established in the *Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee*.

2. Referenced Documents

2.1 ASTM Standards:²

- D115 Test Methods for Testing Solvent Containing Varnishes Used for Electrical Insulation
- 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
- D176 Test Methods for Solid Filling and Treating Compounds Used for Electrical Insulation (Withdrawn 2013)³
- D202 Test Methods for Sampling and Testing Untreated Paper Used for Electrical Insulation
- D257 Test Methods for DC Resistance or Conductance of Insulating Materials
- D470 Test Methods for Crosslinked Insulations and Jackets for Wire and Cable
- D883 Terminology Relating to Plastics
- D1000 Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications
- D1676 Test Methods for Film-Insulated Magnet Wire
- D1830 Test Method for Thermal Endurance of Flexible Sheet Materials Used for Electrical Insulation by the Curved Electrode Method
- D1868 Test Method for Detection and Measurement of Partial Discharge (Corona) Pulses in Evaluation of Insulation Systems
- D2303 Test Methods for Liquid-Contaminant, Inclined-Plane Tracking and Erosion of Insulating Materials
- D2304 Test Method for Thermal Endurance of Rigid Electrical Insulating Materials
- D2307 Test Method for Thermal Endurance of Film-Insulated Round Magnet Wire
- D2519 Test Method for Bond Strength of Electrical Insulating Varnishes by the Helical Coil Test
- D2520 Test Methods for Complex Permittivity (Dielectric Constant) of Solid Electrical Insulating Materials at Microwave Frequencies and Temperatures to 1650 °C
- D2671 Test Methods for Heat-Shrinkable Tubing for Electrical Use
- D2967 Test Method for Corner Coverage of Powder Coatings
- D3032 Test Methods for Hookup Wire Insulation
- D3056 Test Method for Gel Time of Solventless Varnishes

- D3145 Test Method for Thermal Endurance of Electrical Insulating Varnishes by Helical Coil Method
 - D3214 Test Methods for Coating Powders and Their Coatings Used for Electrical Insulation (Withdrawn 2002)³
 - D3288/D3288M Test Methods for Magnet-Wire Enamels
 - D3312 Test Method for Percent Reactive Monomer in Solventless Varnishes
 - D3353 Test Methods for Fibrous-Insulated Magnet Wire
 - D3382 Test Methods for Measurement of Energy and Integrated Charge Transfer Due to Partial Discharges (Corona) Using Bridge Techniques
 - D3426 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials Using Impulse Waves
 - D3636 Practice for Sampling and Judging Quality of Solid Electrical Insulating Materials
 - D3755 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials Under Direct-Voltage Stress
 - D4313 Specification for General-Purpose, Heavy-Duty, and Extra-Heavy-Duty Crosslinked Chlorinated Polyethylene (CPE) Jackets For Wire and Cable
 - D4323 Test Method for Hydrogen Sulfide in the Atmosphere by Rate of Change of Reflectance
 - D4470 Test Method for Static Electrification
 - D4496 Test Method for D-C Resistance or Conductance of Moderately Conductive Materials
 - D4733 Test Methods for Solventless Electrical Insulating Varnishes
 - D4880 Test Method for Salt Water Proofness of Insulating Varnishes Over Enamelled Magnet Wire
 - D4881 Test Method for Thermal Endurance of Varnished Fibrous, Film-Wrapped, or Film Insulated Magnet Wire
 - D4882 Test Method for Bond Strength of Electrical Insulating Varnishes by the Twisted-Coil Test
 - D5288 Test Method for Determining Tracking Index of Electrical Insulating Materials Using Various Electrode Materials (Excluding Platinum)
 - D6053 Test Method for Determination of Volatile Organic Compound (VOC) Content of Electrical Insulating Varnishes
 - E176 Terminology of Fire Standards
 - E456 Terminology Relating to Quality and Statistics
- 2.2 Other Standards:
- GB/T 26667 Terminology for Electromagnetic Shielding Materials⁴
 - ISO 13943 Fire Safety-Vocabulary⁵

3. Terminology

absorbing material, *n*—material capable of absorbing energy from an electromagnetic wave.⁶ (2014)

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. 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 Standardization Administration of China, Haidian District, Beijing, People's Republic of China.

⁵ Available from International Organization for Standardization (ISO), ISO Central Secretariat, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, <https://www.iso.org>.

⁶ This term is defined in a way similar to the way it appears in the GB/T 26667 standard entitled, "Terminology for Electromagnetic Shielding Materials."