



Standard Test Methods for Heat-Shrinkable Tubing for Electrical Use¹

This standard is issued under the fixed designation D2671; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 These test methods cover the testing of heat-shrinkable tubing used for electrical insulation. Materials used include poly(vinyl chloride), polyolefins, fluorocarbon polymers, silicone rubber, and other plastic or elastomeric compounds.

1.2 The procedures appear in the following sections:

Procedure	Sections	ASTM Method Reference
Adhesive Peel Strength	98 – 104	
Brittleness Temperature	40	D746
Color	55 and 56	D1535
Color Stability	57 – 62	D1535
Conditioning	7	D618
Copper Stability	93	
Corrosion Testing	89 – 95	
Dielectric Breakdown	20 – 25	D149
Dimensions	8 – 13	D876
Flammability	68 – 72	D876
Fluid Resistance	63 – 67	
Fungus Resistance	104 – 108	
Heat Resistance	49 – 54	
Heat Shock	26 – 30	
Low-Temperature Properties	36 – 43	
Restricted Shrinkage	14 – 19	
Selection of Test Specimens	6	
Secant Modulus	81 – 84	D882
Storage Life	31 – 35	
Specific Gravity	73 and 74	D792
Stress Modulus	85 – 88	D412
Tensile Strength and Ultimate Elongation	44 – 48	D412
Thermal Endurance	96 and 97	
Volume Resistivity	75 – 78	D257
Water Absorption	79 and 80	D570
Melting Point	104 – 108	D3418

1.3 This is a fire-test-response standard.

1.4 The values stated in inch-pound units are to be regarded as standard, except for temperature, which shall be expressed in degrees Celsius. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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. For specific hazard statements, see Sections 5 and 68.2.

NOTE 1—These test methods are similar, but not identical to, those in IEC 60684–2 (see also Note 9).

2. Referenced Documents

2.1 ASTM Standards:²

D149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies
D257 Test Methods for DC Resistance or Conductance of Insulating Materials
D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
D570 Test Method for Water Absorption of Plastics
D618 Practice for Conditioning Plastics for Testing
D746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
D792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
D876 Test Methods for Nonrigid Vinyl Chloride Polymer Tubing Used for Electrical Insulation
D882 Test Method for Tensile Properties of Thin Plastic Sheet
D1535 Practice for Specifying Color by the Munsell System
D1711 Terminology Relating to Electrical Insulation
D3418 Test Method for Transition Temperatures and Enthalpies of Fusion and Crystallization of Polymers by Differential Scanning Calorimetry
E176 Terminology of Fire Standards

2.2 Other Documents:

MIL-STD 104 Limits for Electrical Insulation Color³

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 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 Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.