



Designation: D3032 – 21a

Standard Test Methods for Hookup Wire Insulation¹

This standard is issued under the fixed designation D3032; 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 reappraisal. A superscript epsilon (ε) indicates an editorial change since the last revision or reappraisal.

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

1. Scope*

1.1 These test methods cover procedures for testing hookup wire.

1.2 For the purposes of these test methods, hookup wire insulation includes all components of the insulation system used on single insulated conductors or an assembly of single insulated conductors such as a cable bundle and harness or flat ribbon cable. The insulating materials include not only the primary insulation over the conductor, but also insulating jackets over shielded constructions.

1.3 These test methods and their locations are as follows:

	Section
Axial Stability (Longitudinal Change) After Thermal Exposure	20
Bondability of Insulation to Potting Compounds	18
Capacitance	9 to 11
Cold Bend Test	25
Concentricity	25
Crush Resistance	19
Dielectric Breakdown Voltage	5
Dimensions	14
Dry-arc Tracking	28
Dynamic Cut-through	21
Fluid Immersion	22
High Temperature Shock	23
Insulation-Continuity Proof Tests	12
Insulation Resistance	6
Partial Discharge (Corona) Inception and Extinction Voltage	24
Relative Thermal Life and Temperature Index	13
Strip Force	26
Surface Resistance	26
Tensile Properties	16
Vertical Flame	17
Vertical Flame Test A	18.5
	(Test Method D8354)
Vertical Flame Test B	17.6 – 17.11.4
Voltage Rating of Hook-Up Wire	Annex A1
Voltage Withstand Test	8
Wet Arc-tracking	27

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

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 Electrical Insulating Materials.

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1.5 This standard measures and describes the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not, by itself, incorporate all factors required for fire hazard or fire risk assessment of the materials, products, or assemblies under actual fire conditions.

1.6 Fire testing is inherently hazardous. Adequate safeguards for personnel and property shall be employed in conducting these tests.

1.7 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. For specific warning statements, see 17.1.3, 24.4, and Note 18.

1.8 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

- 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
- D257 Test Methods for DC Resistance or Conductance of Insulating Materials
- D374 Test Methods for Thickness of Solid Electrical Insulation (Metric) D0374_D0374M
- D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- D471 Test Method for Rubber Property—Effect of Liquids
- D543 Practices for Evaluating the Resistance of Plastics to Chemical Reagents

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.

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