



Standard Test Methods for Nonrigid Vinyl Chloride Polymer Tubing Used for Electrical Insulation¹

This standard is issued under the fixed designation D876; 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 general-purpose (Grade A), low-temperature (Grade B), and high-temperature (Grade C)² nonrigid vinyl chloride polymer tubing, or its copolymers with other materials, for use as electrical insulation. For the purpose of these test methods nonrigid tubing shall be tubing having an initial elongation in excess of 100 % at break.

NOTE 1—These test methods are similar but not identical to those in IEC 60684–2.

1.2 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.

1.3 The procedures appear in the following sections:

Procedure	ASTM Reference	
	Section	Standard
Brittleness Temperature	43 – 45	D746
Corrosion Tests	74 – 85	D1000
Dielectric Breakdown Voltage at High Humidity	65 – 73	E104
Dielectric Breakdown Voltage	58 – 64	D149
Dimensional Tests	8 – 14	D374
Effect of Elevated Temperatures	25 – 36	D412
Flammability Test	15 – 21	
Oil Resistance Test	35 – 42	D471
Penetration Test	46 – 51	
Sampling	6	
Strain Relief Test	68 – 73	
Tension Test	22 – 24	D412
Test Conditions	7	
Volume Resistivity	52 – 57	D257

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 applica-*

bility of regulatory limitations prior to use. For specific hazard statements, see Section 5.

1.5 *For fire test caveats, see Section 15.*

2. Referenced Documents

2.1 *ASTM Standards:*³

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

D374 Test Methods for Thickness of Solid Electrical Insulation (Withdrawn 2013)⁴

D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension

D471 Test Method for Rubber Property—Effect of Liquids

D746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact

D1000 Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications

D1711 Terminology Relating to Electrical Insulation

D5032 Practice for Maintaining Constant Relative Humidity by Means of Aqueous Glycerin Solutions

E104 Practice for Maintaining Constant Relative Humidity by Means of Aqueous Solutions

E176 Terminology of Fire Standards

2.2 *IEC Standards:*

60684–2 Flexible insulating sleeving, Part 2, Methods of test⁵

3. Terminology

3.1 *Definitions:*

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 Test methods applicable to Grade B will be specified at a later date.

³ 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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.