Designation: D 876 – 00

An American National Standard

Standard Test Methods for Nonrigid Vinyl Chloride Polymer Tubing Used for Electrical Insulation[1]

This standard is issued under the fixed designation D 876; 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 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 the standard, except temperature, which shall be stated in degrees Celsius. Values in parentheses are for information only.

1.3 The procedures appear in the following sections:

Procedure	Section	ASTM Reference Standard
Brittleness Temperature	43-45	D 746
Corrosion Tests	74-85	D 1000
Dielectric Breakdown Voltage at High Humidity	65-73	E 104
Dielectric Breakdown Voltage	58-64	D 149
Dimensional Tests	8-14	D 374
Effect of Elevated Temperatures	25-36	D 412
Flammability Test	15-21	
Oil Resistance Test	35-42	D 471
Penetration Test	46-51	
Sampling	6	
Strain Relief Test	68-73	
Tension Test	22-24	D 412
Test Conditions	7	
Volume Resistivity	52-57	D 257

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 Section 3.

2. Referenced Documents

2.1 *ASTM Standards:*

D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies[3]

D 257 Test Methods for D-C Resistance or Conductance of Insulating Materials[3]

D 374 Test Methods for Thickness of Solid Electrical Insulation[3]

D 412 Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermostatic Elastomers—Tension[4]

D 471 Test Method for Rubber Property—Effect of Liquids[4]

D 746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact[5]

D 1000 Test Methods for Pressure-Sensitive Adhesive–Coated Tapes Used for Electrical and Electronic Applications[3]

D 1711 Terminology Relating to Electrical Insulation[3]

D 5032 Practice for Maintaining Constant Relative Humidity by Means of Glycerin Solutions[6]

E 176 Terminology of Fire Standards[7]

2.2 *IEC Standards:*

60684–2 Flexible insulating sleeving, Part 2, Methods of test[8]

3. Terminology

3.1 *Definitions*:

3.1.1 For definitions pertaining to electrical insulation, refer to Terminology D 1711.

3.1.2 For definitions pertaining to fire standards, refer to Terminology E 176.

[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] *Annual Book of ASTM Standards*, Vol 10.01.

[4] *Annual Book of ASTM Standards*, Vol 09.01.

[5] *Annual Book of ASTM Standards*, Vol 08.01.

[6] *Annual Book of ASTM Standards*, Vol 10.02.

[7] *Annual Book of ASTM Standards*, Vol 04.07.

[8] Available from American National Standards Institute, 11 W. 42nd St., New York, NY 10036.

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