



# Standard Test Method for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications<sup>1</sup>

This standard is issued under the fixed designation D 1000; 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 procedures for testing pressure-sensitive adhesive-coated tapes to be used as electrical insulation. These tapes are classified as follows:

1.1.1 *Class 1*—Non-elastomeric backings made from materials such as:

Paper, flat or creped,  
Fabric, uncoated or coated,  
Cellulose ester films,  
Polyethylene terephthalate (polyester) films,  
Fluorocarbon polymer films,  
Composite filament films,  
Polyamide films,  
Polyimide films, and  
Combinations thereof.

1.1.2 *Class 2*—Elastomeric backings that are characterized by both high stretch and substantial recovery. These backings are made from materials such as:

Vinyl chloride and co-polymers,  
Vinylidene chloride and co-polymers, and  
Polyethylene and co-polymers.

1.2 Laminates of Class 1 and Class 2 backings should be tested according to Class 1 test methods.

1.3 *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 hazards see Section 3.

1.4 The procedures appear in the sections indicated below and in alphabetical order:

|                                                            |         |
|------------------------------------------------------------|---------|
| Adhesion Strength to Steel and Backing at Room Temperature | 46-53   |
| Adhesion Strength to Steel and Backing at Low Temperatures | 46-53   |
| Bond Strength After Solvent Immersion                      | 110-115 |
| Breaking Strength and Elongation at Room Temperature       | 37-45   |
| Breaking Strength and Elongation at Low Temperatures       | 37-45   |
| Conditioning                                               | 6-8     |
| Curling and Twisting                                       | 140-146 |
| Dielectric Breakdown Voltage                               | 83-90   |

|                                                       |         |
|-------------------------------------------------------|---------|
| Effect of Accelerated Aging on High-Temperature Tapes | 97-103  |
| Flagging                                              | 66-76   |
| Flammability                                          | 104-109 |
| Hazards/Precautions                                   | 3       |
| Insulation Resistance at High Humidity                | 91-96   |
| Length of Tape in a Roll                              | 28-36   |
| Oil Resistance                                        | 116-122 |
| Puncture Resistance                                   | 123-128 |
| Resistance to Accelerated Aging (Heat and Moisture)   | 129-139 |
| Sampling                                              | 4       |
| Specimen Preparation                                  | 5       |
| Thermosetting Properties                              | 77-82   |
| Thickness                                             | 21-27   |
| Unwind Force at Room Temperature                      | 54-65   |
| Unwind Force at Low Temperatures                      | 54-65   |
| Width                                                 | 11-20   |

NOTE 1—These procedures apply to both Class 1 and Class 2 tapes except as noted above.

1.5 The values stated in SI units are the standard, unless otherwise noted. If a value for measurement is followed by a value in inch-pound or English units in parentheses, the second value may only be approximate and is for information only. The first stated value is the preferred unit.

NOTE 2—These test methods are similar to IEC 60454–3, but may differ sometimes in some details.

1.6 This is a fire-test response standard.

## 2. Referenced Documents

### 2.1 ASTM Standards:

- A 167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip<sup>2</sup>
- D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies<sup>3</sup>
- D 257 Test Methods for DC Resistance or Conductance of Insulating Materials<sup>3</sup>
- D 295 Test Methods for Varnished Cotton Fabrics Used for Electrical Insulation<sup>3</sup>
- D 374 Test Methods for Thickness of Solid Electrical Insulation<sup>3</sup>
- D 1711 Terminology Relating to Electrical Insulation<sup>3</sup>

<sup>1</sup> These test methods are under the jurisdiction of ASTM Committee D-9 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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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 01.03.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 10.01.