



Standard Specification for Polyester Film Pressure-Sensitive Electrical Insulating Tape¹

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1. Scope

1.1 This specification covers electrical insulating tape consisting of a polyester plastic film coated on one side with a pressure-sensitive adhesive.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parenthesis are provided for information only.

NOTE 1—This standard and IEC 60454-3-2 and -3 are similar but not equivalent in all details.

2. Referenced Documents

2.1 ASTM Standards:

D 1000 Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications²

D 1711 Terminology Relating to Electrical Insulation²

D 2305 Test Methods for Polymeric Films Used for Electrical Insulation²

2.2 IEC Standard:

Publication 60454-3 Specifications for Pressure-Sensitive Adhesive Tapes for Electrical Purposes. Sheet 2: Requirements for Polyester Film Tapes (PETP) with Thermosetting Adhesive. Sheet 3: Requirements for Polyester Film Tapes (PETP) with Non-Thermosetting Adhesive³

3. Terminology

3.1 *Definitions*— For definitions of terms used in this specification, refer to Terminology D 1711.

4. Classification

4.1 This specification includes the requirements for four types as follows:

4.1.1 *Type 1*—General-purpose tape, nominal thickness 0.06 mm (0.0025 in.) and coated with a thermoplastic adhesive which is not chemically heat reactive.

4.1.2 *Type 2*—General-purpose tape, nominal thickness 0.06 mm (0.0025 in.) and coated with a heat-reactive thermosetting adhesive.

4.1.3 *Type 3*—General-purpose tape, nominal thickness 0.09 mm (0.0035 in.) and coated with a heat-reactive thermosetting adhesive.

4.1.4 *Type 4*—General-purpose tape, nominal thickness 0.025 mm (0.0010 in.) and coated with a heat-reactive thermosetting adhesive.

5. Materials and Manufacture

5.1 The polymer used as the backing shall be clear polyethylene terephthalate sheet.

5.2 The pressure-sensitive adhesive coating shall be free from lumps and bare spots. There shall be no adhesive transfer when tape is unwound from the roll.

5.3 Both transparent and colored tapes are available.

5.3.1 *Type 1*—Transparent.

5.3.2 *Types 2, 3, and 4*—Transparent and colors.

6. Standard Rolls

6.1 The standard widths and lengths shall be selected from the following:

6.1.1 Widths:

mm	in.	mm	in.
6	1/4	22	7/8
9	3/8	25	1
12	1/2	30	1 1/4
15	5/8	38	1 1/2
19	3/4	50	2

Widths greater than 50 mm (2 in.) shall be agreed upon between the purchaser and the seller.

6.1.2 Lengths:

m	ft
33	108
50	164
55	180
66	216

6.2 Non-standard widths and lengths are permissible if agreed upon between the purchaser and seller.

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² *Annual Book of ASTM Standards*, Vol 10.01.

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

TABLE 1 Requirements for all Types of Polyester Plastic Pressure-Sensitive Electrical Insulating Tapes

Requirement	Unit	Value	ASTM Method
Width as specified:			
under 12.7 mm (½ in.)	mm (in.)	±0.4 (±1/64)	D 1000
12.7 mm (½ in.), and over	mm (in.)	±0.8 (±1/32)	D 1000
Length as specified, min	m avg (ft avg)	66 minus 1 % (216 minus 1 %)	D 1000
Elongation	% avg	75 min	D 1000
Penetration	°C avg	200	D 1000
High-humidity insulation resistance (measure of corrosion)	MΩ, median	50 000 min	D 1000
Strain relief (shrinkage)	% max	3.5	D 2305 ^A

^AThe temperature shall be maintained at 150 ± 2°C for at least 30 min and only lengthwise specimens shall be used.

7. Requirements

7.1 The tape shall meet the requirements given in Tables 1 and 2 for the type specified.

8. Test Methods

8.1 The selection of rolls, conditioning, and testing shall be in accordance with Test Methods D 1000, except as noted in Tables 1 and 2.

9. Rejection

9.1 If the test results of any roll do not conform to the requirements prescribed in the specification, two additional rolls shall be selected and tested. If one of the two additional sample rolls also does not conform to the requirements, the lot may be rejected at the option of the purchaser.

10. Packaging and Package Marking

10.1 The packaging shall withstand shipment and shall give the product ample protection against damage. The individual rolls shall not adhere to each other or to the container.

10.2 Each package shall be marked with the name of the manufacturer, the ASTM specification number, the type number, the thickness, the width, and the length on the roll.

11. Keywords

11.1 electrical insulating tape; polyester film pressure-sensitive tape; pressure-sensitive adhesive tape

TABLE 2 Specific Requirements for Polyester Plastic Pressure-Sensitive Electrical Insulating Tapes

Requirement	Type 1	Type 2	Type 3	Type 4
Thickness, mm (in.) avg	0.060 ± 0.015 (0.0025 ± 0.0005)	0.060 ± 0.015 (0.0025 ± 0.0005)	0.090 ± 0.015 (0.0035 ± 0.0005)	0.025 ± 0.008 (0.0010 ± 0.0003)
Breaking strength, N/m (lbf/in.) avg	3.5 (20)	3.5 (20)	6.1 (35)	1.7 (10)
Dielectric breakdown, min, V avg:				
Standard condition	4500	4500	6000	3000
After immersion	4000	4000	5500	2500
Adhesion, min, N/m (ozf/in.) avg				
Steel	219 (20)	383 (35)	383 (35)	219 (20)
Backing standard condition	164 (15)	164 (15)	164 (15)	109 (10)
Backing after thermosetting ^A	...	383 (35)	383 (35)	383 (35)

^AThe tape shall be thermoset after application to the backing in accordance with the manufacturer's instructions.

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