



Standard Specification for Polyester Film Pressure-Sensitive Electrical Insulating Tape¹

This standard is issued under the fixed designation D2484; 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.

^{ε1} NOTE—Table 2 was editorially revised in April 2012.

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*:²

D876 Test Methods for Nonrigid Vinyl Chloride Polymer Tubing Used for Electrical Insulation

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

D1711 Terminology Relating to Electrical Insulation

D2305 Test Methods for Polymeric Films Used for Electrical Insulation

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 **D1711**.

¹ This specification is under the jurisdiction of ASTM Committee **D09** on Electrical and Electronic Insulating Materials and is the direct responsibility of Subcommittee **D09.07** on Flexible and Rigid Insulating Materials.

Current edition approved April 1, 2012. Published April 2012. Originally approved in 1966. Last previous edition approved in 2006 as D2484 – 06. DOI: 10.1520/D2484-06R12E01.

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.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

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 | ¼ | 22 | ⅞ |
| 9 | ⅜ | 25 | 1 |
| 12 | ½ | 30 | 1¼ |
| 15 | ⅝ | 38 | 1½ |
| 19 | ¾ | 50 | 2 |

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

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



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.

7. Requirements

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

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 (1/2 in.) | mm (in.) | ±0.4 (±1/64) | D1000 |
| 12.7 mm (1/2 in.), and over | mm (in.) | ±0.8 (±1/32) | D1000 |
| Length as specified, min | m avg (ft avg) | 66 minus 1 % (216 minus 1 %) | D1000 |
| Elongation | % avg | 75 min | D1000 |
| Penetration | °C avg | 200 | D876 |
| High-humidity insulation resistance (measure of corrosion) | MΩ, median | 50 000 min | D1000 |
| Strain relief (shrinkage) | % max | 3.5 | D2305 ^A |

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

8. Test Methods

8.1 Select samples, conditioning and test methods in accordance with Test Methods D1000 except as noted in Tables 1 and 2.

8.2 Perform the penetration test in accordance with Test Methods D876 with the following exceptions: With no load on the rod, insert each specimen between the steel ball and steel plate with the adhesive of the tape facing the plate and assuring that the tape is smooth against the plate and not stretched. Use new steel balls for each test.

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 24-hr immersion in water | 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.

SUMMARY OF CHANGES

Committee D09 has identified the location of selected changes to this specification since the last issue, D2484 – 06. that may impact the use of this specification. (Approved April 1, 2012)

(I) Revised Table 2.

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