Designation: D2686 – 06 (Reapproved 2012)

Standard Specification for Polytetrafluoroethylene-Backed Pressure-Sensitive Electrical Insulating Tape[1]

This standard is issued under the fixed designation D2686; 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 This specification covers electrical insulating tape consisting of a polytetrafluoroethylene (PTFE) 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 parentheses are for information only.

NOTE 1—This standard is similar to IEC 60454-3-14.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

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

D1711 Terminology Relating to Electrical Insulation

2.2 *IEC Standard:*

IEC 60454-3 Specifications for Pressure-Sensitive Adhesive Tapes for Electrical Insulation[3]

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminology D1711.

4. Classification

4.1 This specification covers two types of PTFE tape in various thicknesses, as follows:

4.1.1 *Type I*—Standard backing coated with a silicone adhesive:

4.1.1.1 *Grade A*—0.050 mm (0.002 in.) backing thickness, and

4.1.1.2 *Grade B*—0.125 mm (0.005 in.) backing thickness.

4.1.2 *Type II*—Bondable backing tape coated with a silicone adhesive:

4.1.2.1 *Grade A*—0.050 mm (0.002 in.) backing thickness, and

4.1.2.2 *Grade B*—0.125 mm (0.005 in.) backing thickness.

5. Materials and Manufacture

5.1 The tape shall comprise a backing consisting of a film of tetrafluorethylene polymer on one side of which has been applied a pressure-sensitive adhesive. The backing shall be free of defects such as roughness and holes, and the adhesive layer shall not show defects such as lumps or gels and bare areas. The slit edge of the tape shall be free of defects such as nicks. The adhesive shall not transfer when the tape is unwound from the roll. The product may contain a release liner to assist the unwind and avoid transfer without affecting the adhesion of the tape.

6. Requirements

6.1 All tapes shall meet the requirements given in Table 1 for the grades specified.

7. Standard Rolls

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

7.1.1 *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.

[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.

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[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.

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

TABLE 1 Requirements for PTFE Pressure-Sensitive Adhesive Tapes

Requirements	Grade A	Grade B
Nominal thickness of backing, mm (in.)	0.050 (0.002)	0.125 (0.005)
Total thickness, mm avg (in. avg)	0.100 ± 0.025 (0.004 ± 0.001)	0.180 ± 0.025 (0.007± 0.001)
Breaking strength, min, kN/m (lbf/in.) avg	1.7 (10)	3.5 (20)
Elongation, min, percent avg	75	150
Adhesion, min, N/m (ozf/in.) avg:		
Steel	164 (15)	219 (20)
Backing (Type II only)	164 (15)	164 (15)
Dielectric breakdown, min, V avg:		
Standard condition	6000	10 000
After water immersion	6000	10 000
High-humidity insulation resistance, min, median megohms resistance	2×10^5	2×10^5

7.1.2 *Lengths:*

m	ft	m	ft
33	108	55	180
50	164	66	216

7.1.3 Nonstandard widths and lengths are permissible if agreed to between the purchaser and seller.

8. Test Methods

8.1 Select the rolls, condition, and test in accordance with Test Methods D1000.

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 *Packaging*—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 *Marking*—Each package shall be marked with the name of the manufacturer; the ASTM specification number, type, and width; and the length of the roll.

11. Keywords

11.1 electrical insulating tape; polytetrafluoroethylene; pressure-sensitive adhesive tape; PTFE

SUMMARY OF CHANGES

Committee D09 has identified the location of selected changes to this specification since the last issue, D2686 – 00, that may impact the use of this specification. (Approved October 15, 2006)

(*1*) Corrected outdated reference to Test Method D1000 Adhesion Methods A and B and made a minor editorial correction in Table 1.