

MIL-I-187468  
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SUPERSEDING  
MIL-I-18746A  
8 October 1956

## MILITARY SPECIFICATION

### INSULATION TAPE, NONADHERING, GLASS FABRIC POLYTETRAFLUOROETHYLENE COATED

*This specification is mandatory for use by the departments and agencies of the Department of Defense.*

#### 1. SCOPE

1.1 This specification covers one type of polytetrafluoroethylene-coated glass fabric tape for electrical insulation at temperatures up to 260° centigrade (500° Fahrenheit). Tape procured to this specification does not contain adhesive backing.

#### 2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on the date of invitation for bids or request for proposal form a part of this specification to the extent specified herein.

#### SPECIFICATIONS

##### Federal

PPP-T-680

Tape, Pressure Sensitive Adhesive, Packaging and Packing of

#### STANDARDS

##### Military

MIL-STD-105

Sampling Procedures and Tables for Inspection by Attributes

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(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following document forms a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on the date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials

D-902

Testing Flexible Resin-Coated Glass Fabrics and  
Glass Fabric Tapes Used for Electrical Insulation

(Copies of ASTM publications may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa., 19103.)

3. REQUIREMENTS

3.1 Material.

3.1.1 Glass fabric. The base material used in the manufacture of the tape shall be a woven glass fabric of the necessary thickness and strength to meet the requirements of this specification.

3.1.2 Coating. The glass fabric shall be coated on both sides with polytetrafluoroethylene resin. The coating shall penetrate and adhere to the fabric and shall have a smooth surface, substantially free of wrinkles, creases, blisters, and other imperfections.

3.2 Dimensions.

3.2.1 Thickness. The insulating tape shall be furnished in the following thicknesses, with the tolerances as indicated in table I.

3.2.2 Width. The insulating tape shall be furnished in the following widths, with the tolerances as indicated in table II.

Table I

THICKNESS	
Nominal thickness (inch)	Tolerance (inch)
0.002	±0.0005
0.003	±0.0005
0.005	±0.001
0.007	±0.001
0.010	±0.0015
0.012	±0.0015
0.015	±0.002

Table II

WIDTH	
Nominal width (inch)	Tolerance (inch)
1/2	±1/32
3/4	±1/32
1	±1/32
1-1/2	±1/16

3.2.3 Length. Insulating tape shall be furnished in 36-, 72-, or 100-yard rolls. A tolerance of 1 foot per 36 yards is allowable.

3.3 Breaking strength. When tested as specified in 4.4, the breaking strengths for the various thicknesses shall be as specified in table III.

3.4 Dielectric strength. When tested in accordance with 4.4, the dielectric strength of the tape shall be as specified in table III.

3.4.1 Dielectric strength after heating. After exposure to a temperature of  $150 \pm 5^\circ$  centigrade ( $302^\circ$  Fahrenheit) for 12 hours, the average dielectric strength shall not be less than 80 percent of the value determined before exposure.

3.5 Workmanship. The insulating tape shall be free of any defects affecting its appearance or serviceability. There shall be no visible overlap of tape edges or separation between layers.

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Table III

Thickness (inch)	Breaking strength, minimum (pound per inch width)	Dielectric strength (volts per mil)	
		Minimum average of 5 test values	Minimum single test value
0.002	20	800	600
0.003	40	800	600
0.005	70	700	500
0.007	100	600	500
0.010	150	500	400
0.012	175	500	400
0.015	200	500	400

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

#### 4.2 Quality conformance inspection.

##### 4.2.1 Sampling.

4.2.1.1 Lot. For purposes of sampling, a lot shall consist of all material manufactured in one production run offered for delivery.

4.2.1.2 Sample for product examination. A random sample shall be taken in accordance with MIL-STD-105, inspection level I. Acceptable quality level (AQL) shall be 2.5 percent defective. The unit of product shall be one roll of tape.

4.2.1.3 Sample for tests. A random sample shall be taken in accordance with MIL-STD-105, inspection level S-2. AQL shall be 6.5 percent defective.

#### 4.2.2 Examination.

4.2.2.1 Visual. Each sample roll selected in accordance with 4.2.1.2 shall be visually inspected to verify compliance with 3.1.2 and 3.5. A minimum of 10 yards shall be unrolled and inspected.

4.2.2.2 Thickness. Thickness (inclusive of polytetrafluoroethylene coating) shall be measured in accordance with the methods specified in ASTM D-902.

4.2.2.3 Width. Width of samples selected in accordance with 4.2.1.2 shall be determined by use of a standard steel scale graduated to read within one thirty-seconds of an inch. The tape shall lie on a smooth flat surface at the time of measurement. A minimum of 10 measurements shall be taken in accordance with MIL-STD-105 and compared with table II. A lot shall be rejected if any reading is out of tolerance.

4.2.2.4 Length. Length of tape per roll shall be measured by a suitable method to verify compliance with 3.2.3.

4.2.2.5 Inspection of preparation for delivery. The packaging, packing, and marking shall be examined in accordance with PPP-T-680.

#### 4.3 Test conditions.

4.3.1 Sample rolls. Sample rolls shall be prepared in accordance with ASTM D-902.

4.3.2 Tape conditioning. Unless otherwise specified in the method of test, all tape selected for testing shall be conditioned in accordance with ASTM D-902.

#### 4.4 Test methods.

4.4.1 Breaking strength. Breaking strength of samples selected in accordance with 4.2.1.3 shall be determined in accordance with ASTM D-902.

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4.4.2 Dielectric strength. Dielectric strength shall be determined in accordance with ASTM D-902.

4.4.2.1 Dielectric strength after aging. The specimens for this test shall be maintained at  $150^{\circ}$  centigrade  $\pm 5^{\circ}$  ( $302^{\circ}$  Fahrenheit) for 12 hours before testing in accordance with ASTM D-902.

4.5 Rejection criteria. If a sample fails to meet any of the test requirements of this specification, the lot represented by the sample shall be rejected.

## 5. PREPARATION FOR DELIVERY

5.1 Packaging and packing. Rolls of tape shall be packaged level A or C, and packed level A, B, or C as specified in the contract or order in accordance with PPP-T-680.

5.2 Marking. Marking shall be in accordance with PPP-T-680. In addition, unit and exterior containers shall be durably and legibly marked with the following information:

Federal Stock no.  
Width  
Length  
Overall thickness  
Contract or Order  
Date of manufacture (month and year)  
Manufacturer's name and address

## 6. NOTES

6.1 Intended use. Polytetrafluoroethylene-coated glass fabric tape is intended for use where temperatures exceeding  $150^{\circ}$  centigrade ( $302^{\circ}$  Fahrenheit) are prevalent.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification
- (b) Thicknesses, widths, and lengths of rolls (see 3.2)
- (c) Level of packaging and packing (see 5.1).

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6.3 International standardization agreements. Certain provisions of this specification are the subject of international standardization agreement, ABC-Navy-STD-17C; "Electrical Insulating Materials," dated 21 April 1966. When amendment, revision, or cancellation of this specification is proposed that will affect or violate the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels including departmental standardization offices, if required.

## Custodians:

Army - EL  
Navy - OS  
Air Force - 80

## Preparing activity:

NAVY - OS  
(Project Number 5970-0368)

## Review activities:

Army - MJ, MI  
Navy - EC  
Air Force - 13

## User activities:

Army - AV  
Navy - SII  
Air Force - None

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

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32 MAR 1966

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