

MIL-T-47045(MI)  
10 May 1974  
~~SUPERSEDING~~  
MIS 14351  
21 July 1966

## MILITARY SPECIFICATION

### TWINE, LACING AND TYING, TETRAFLUOROETHYLENE (FOR USE IN ELECTRICAL AND ELECTRONIC EQUIPMENT)

This specification is approved for use  
by all departments and agencies of the  
Department of Defense.

#### 1. SCOPE

1.1 Scope. This specification covers the requirements  
for one type of tetrafluoroethylene lacing and tying twine  
for use in electrical and electronic equipment.

#### 2. APPLICABLE DOCUMENTS

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

#### SPECIFICATIONS

##### Federal

CCC-T-191

Textile Test Methods

PPP-P-50

Packaging and Packing of Thread  
for Domestic and Overseas

#### STANDARDS

##### Military

MIL-STD-129

Marking for Shipment and Storage

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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.)

### 3. REQUIREMENTS

3.1 Preproduction sample. Unless otherwise specified (see 6.2), a preproduction sample of twine shall meet the requirements of this specification.

3.2 Material. The twine shall be made from preshrunk, uncoated tetrafluoroethylene fibers, using a round twist construction.

#### 3.3 Mechanical properties.

3.3.1 Breaking strength. The breaking strength of the twine shall be not less than 4 pounds.

3.3.2 Elongation. The elongation of the twine shall be not more than 35 percent.

#### 3.4 Dimensions.

3.4.1 Diameter. The diameter of the twine shall be 0.010 plus or minus 0.002 inch.

3.4.2 Length. The length of the preshrunk twine shall be not less than 3280 yards per pound.

### 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Preproduction sample. The preproduction sample shall be prepared using the same methods proposed for the preparation of subsequent lots of material. Preproduction

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samples which do not meet the requirements of this specification shall be subject to rejection and return to the supplier.

4.3 Classification of tests. The inspection and testing of the twine shall be classified as follows:

- a. Preproduction tests.
- b. Quality conformance tests.

4.3.1 Preproduction tests. Preproduction tests shall be conducted only on the preproduction sample and shall consist of all the examinations and tests specified herein.

4.3.2 Quality conformance tests. Quality conformance tests for acceptance of the twine shall consist of the following examinations and tests.

- a. Breaking strength.
- b. Dimensions.

4.3.2.1 Lot size. Lot size shall consist of all the twine manufactured at one time from one batch, forming part of one contract or order, and submitted for acceptance at the same time and place.

4.3.2.2 Sampling. Unless otherwise specified (see 6.2), 5 yards from one spool representative of each lot shall be selected at random for quality conformance testing. Each spool in lot shall be considered as a unit of product. Failure of sample to meet the quality conformance test requirements shall be cause for lot rejection.

#### 4.4 Test methods.

4.4.1 Test conditions. Unless otherwise specified in the applicable test, all tests shall be conducted at plus 23 plus or minus 2 degrees Celsius (C) (73.4 plus or minus 3.6 degrees Fahrenheit (F)) and at relative humidity of 50 plus or minus 5 percent.

#### 4.4.2 Mechanical properties.

4.4.2.1 Breaking strength. The breaking strength of the twine shall be determined in accordance with CCC-T-191, Method 4102. The breaking strength shall be not less than 4 pounds.

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4.4.2.2 Elongation. The elongation of the twine shall be determined in accordance with CCC-T-191, Method 4102. The elongation shall be not more than 35 percent.

4.4.3 Dimensions.

4.4.3.1 Diameter. The diameter of the twine shall be measured with an instrument capable of measuring to the tolerance specified. Diameter of the twine shall be 0.010 plus or minus 0.002 inch.

4.4.3.2 Length. The length of the twine shall be measured with an instrument capable of measuring to the tolerance specified. The length shall be not less than 3280 yards per pound.

4.5 Preservation, packaging, packing, and marking. The preservation, packaging, packing and marking shall be examined for compliance with Section 5.

5. PREPARATION FOR DELIVERY

5.1 Preservation, packaging, packing, and marking. Unless otherwise specified (see 6.2), preservation, packaging, packing, and marking shall be as specified herein.

5.1.1 Level A.

5.1.1.1 Unit packaging. The twine shall be packaged in accordance with PPP-P-50. The twine shall be furnished on spools that are non-reactive with the twine. Length of twine and size of spool shall be as specified by the procuring activity. The twine shall be packaged in such a manner that damage during shipment and storage is prevented.

5.1.2 Level B. Same as Level A.

5.1.3 Level C. Unit package shall be in accordance with 5.1.1.1. Unit containers shall be in accordance with the supplier's commercial practice. Packages shall be protected against deterioration or physical damage during shipment from the supply source to the first receiving activity for immediate use.

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## 5.2 Packing.

5.2.1 Level A. Units packaged in accordance with 5.1.1.1 shall be packed to conform to the overseas shipment requirements of PPP-P-50.

5.2.2 Level B. Same as Level A.

5.2.3 Level C. Packing shall be in accordance with the Uniform Freight Carrier Classification Rules or other carrier regulations as applicable to the mode of transportation.

5.3 Marking. In addition to any special marking required by the contract or purchase order, unit packages, intermediate packages, and shipping containers shall be marked in accordance with MIL-STD-129.

## 6. NOTES

6.1 Intended use. The twine is intended for wrapping armature winding leads.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number and date of this specification.
- b. Whether a preproduction sample is required, and if so, pertinent details (see 3.1).
- c. Sampling plan if other than specified (see 4.3.2.2).
- d. Requirements for preservation, packaging, packing, and marking if different (see 5.1).
- e. Length of twine or size of spool (see 5.1.1.1).
- f. Quantity required.

6.3 Supersession data. This specification includes the requirements of MIS-14351, dated 21 July 1966.

Custodian:  
Army-MI

Preparing Activity:  
Army-MI  
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