

MIL-T-47287A(MI)
 25 September 1980
 Superseding
 MIL-T-47287(MI)
 9 August 1974

MILITARY SPECIFICATION
 TUBE, SPIRAL WRAP, POLY-
 TETRAFLUOROETHYLENE AND POLYAMIDE

This specification is approved for use by the US Army Missile Command, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification establishes the requirements for spirally wrapped polytetrafluoroethylene and polyamide tubing.

1.2 Classification. Tubing covered by this specification shall be of the following types, as specified:

Type I - Polytetrafluoroethylene.

Type II - Polyamide.

- * 1.3 Military part number. The military part number shall consist of the letter B, the basic number of this specification, and dash number compiled from the classification and size required:

Example: B47287-	I	1/8
Basic number of MIL SPEC	Type (1.2)	Size (Table I)

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

Military

MIL-P-22296	Plastic Tubes and Tubing, Polytetrafluoroethylene, (TFE-Fluorocarbon Resin), Heavy Walled
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Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, US Army Missile Command, ATTN: DRSMI-ED, Redstone Arsenal, AL 35898, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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STANDARDS

Military

- * MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes
- * MIL-STD-1188 Commercial Packaging of Supplies and Equipment

(Copies of specifications, standards, drawings, and publications required by contractors 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 documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials

- * ASTM - D570-77 Water Absorption of Plastics, Test for
- * ASTM - D638-72 Tensile Properties of Plastics, Test for

(Application for copies of the ASTM Standards should be addressed to American Society for Testing and Materials, 1916 Race Street, Philadelphia.)

- * Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.

3. REQUIREMENTS

3.1 Material.

3.1.1 Type I. Type I tubing shall be spirally wrapped polytetrafluoroethylene.

3.1.2 Type II. Type II tubing shall be spirally wrapped polyamide.

3.2 Properties.

3.2.1 Type I. Type I tubing properties shall conform to the property values specified in MIL-P-22296.

3.2.2 Type II.

3.2.2.1 Tensile strength. Type II tubing shall have a minimum of 10,000 pounds per square inch (psi) tensile strength.

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3.2.2.2 Water absorption. Type II tubing shall have a maximum of 1.5 percent water absorption.

3.3 Dimensions. Dimensions of Type I and Type II tubing shall be as specified in Table I and Figure 1.

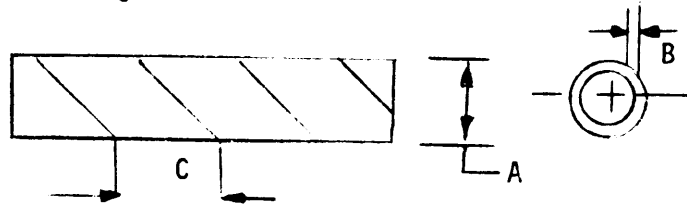


FIGURE 1. Dimensions.

*

TABLE I. Dimensions of Tubing

Size Inches	A Nominal Inches	B Inches	C Inches
<u>Type I</u>			
1/8	0.125	0.020 ± 0.008	0.218 ± 0.015
1/4	0.250	0.030 ± 0.008	0.375 ± 0.015
3/8	0.375	0.030 ± 0.008	0.437 ± 0.015
1/2	0.500	0.030 ± 0.008	0.562 ± 0.015
3/4	0.750	0.040 ± 0.008	0.875 ± 0.015
1	1.000	0.040 ± 0.008	1.000 ± 0.015
<u>Type II</u>			
1/8	0.125	0.015 ± 0.008	0.218 ± 0.015
1/4	0.250	0.023 ± 0.008	0.375 ± 0.015
1/2	0.500	0.032 ± 0.008	0.500 ± 0.015

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3.4 Color

3.4.1 Type I. Type I tubing shall be natural color.

3.4.2 Type II. Type II tubing shall be black in color.

3.5 Workmanship. The plastic tubing supplied to this specification shall be free of blisters, voids, cracks, and foreign inclusions when visually examined.

4. QUALITY ASSURANCE PROVISIONS

* 4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor 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 Quality conformance inspection/tests. Quality conformance inspection/tests for acceptance of the tubing shall be as specified in Table II.

TABLE II INSPECTION/TESTS

Inspection Test	Req. Para.	Test Method Para.
Group A Examination Color Workmanship	3.4 3.5	Visual Visual
Group B Tensile Strength Water Absorption Dimensional	3.2.1; 3.2.2.1 3.2.1; 3.2.2.2 3.3	4.3.1 4.3.2 4.3.3

* 4.2.1 Inspection Lot. An inspection lot shall consist of all the tubing of the same type and nominal inside or outside diameter manufactured by one process under uniform conditions by one manufacturer and offered for inspection at any one time.

* 4.2.2 Sampling for visual examination. Sampling for visual examination of color and workmanship shall be 100 percent of the lot. Failure of any sample to meet the visual examination shall be cause for rejection of the defective unit. Sampling for tensile strength, water absorption and dimensions shall be in accordance with MIL-STD-105, level II, single sampling, AQL 1.0 percent. Sufficient material shall be taken from a random location in each section of tubing and from among the sections in each lot.

4.3 Test methods.

4.3.1 Tensile strength.

- * 4.3.1.1 Type I. Type I tubing shall be tested in accordance with the tensile strength test of MIL-P-22296 and shall be as specified in 3.2.1.
- * 4.3.1.2 Type II. Type II tubing shall be tested in accordance with the tensile strength test of ASTM-D-638 and shall be as specified in 3.2.1.

4.3.2 Water absorption.

- * 4.3.2.1 Type I. Type I tubing shall be tested for water absorption in accordance with MIL-P-22296, and the water absorption percentage shall be as specified in 3.2.1.
- * 4.3.2.2 Type II. Type II tubing shall be tested for water absorption in accordance with ASTM-D-570, and shall be as specified in 3.2.2.2.
- * 4.3.3 Dimensions. Dimensions shall be tested with an appropriate instrument of suitable accuracy and shall conform to Table I.

4.3.4 Color. The color shall be tested visually and shall conform to 3.4.

5. PACKAGING

5.1 Commercial. Preservation, packing unitization and marking shall be in accordance with MIL-STD-1188.

6. NOTES

6.1 Intended use. This specification covers two types of plastic tubing for use in missile applications.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number and date of this specification.
- b. Type I or Type II.
- * c. Military part number (see 1.3).
- * d. Diameter and lengths required.
- * e. Packaging if other than specified (see 5).

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- * 6.3 Changes to previous issue. The margins of this specification are marked with an asterisk to indicate where changes (additions, modification, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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