

MIL-T-36966A
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SUPERSEDING
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MILITARY SPECIFICATION

TUBING, NONMETALLIC, Rubber

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers two sizes of latex rubber tubing for intravenous and laboratory use.

1.2 Classification. The tubing shall be of the following nominal sizes:

Nominal size 1/8 (1/8 inch inside diameter, 1/32 inch wall)
Nominal size 3/16 (3/16 inch inside diameter, 3/32 inch wall)

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 proposals, form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

PPP-B-566	- Boxes, Folding, Paperboard.
PPP-B-585	- Boxes, Wood, Wirebound.
PPP-B-601	- Boxes, Wood, Cleated-Plywood.
PPP-B-621	- Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636	- Boxes, Fiberboard.
PPP-B-676	- Boxes, Set-Up, Paperboard.

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MIL-L-10547	- Liners, Case, and Sheet, Overwrap; Water-Vaporproof or Waterproof, Flexible.
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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: Headquarters, Defense Personnel Support Center, ATTN: Directorate of Medical Materiel, CODE ATT, 2800 South 20th Street, Philadelphia, PA 19101, 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

FEDERAL

FED-STD-601 - Rubber, Sampling and Testing.

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MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129 - Marking for Shipment and Storage.

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

3. REQUIREMENTS

3.1 Material. Tubing shall be fabricated of natural rubber latex.

3.2 Physical properties. When tested as specified in accordance with 4.4.1, 4.4.2 and 4.4.3, tensile strength and elongation shall be as indicated in table 1.

TABLE 1. Physical properties.

Property	Requirements
Tensile strength, initial	1200 pounds per square inch (p.s.i.) (minimum)
Tensile strength after air heat aging for 7 days	At least 65% of initial tensile strength
Ultimate elongation, initial	75% (minimum)

3.3 Color. Tubing shall be translucent and shall be the natural color.

3.4 Dimensions. Dimensions shall be as indicated in table 11.

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TABLE II. Dimensions.

	Size 1/8	Size 3/16
Length (feet)	10 minimum (min.) 50 maximum (max.)	10 min. 50 max.
Inside diameter (inches)	$1/8 \pm 1/64$	$3/16 \pm 1/64$
Wall thickness (inches)	$1/32 \pm 1/128$	$3/32 \pm 1/64$

- * 3.5 Workmanship. The lumen shall be free of powder, dust, pits or rough surfaces. Tubing shall be clean and smooth, free from powder, oil, grease, dirt, cuts, fins, pits, porosity, blowholes, tack, bleeding, blooming and other defects which detract from its appearance or impair its serviceability.

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 to assure supplies and services conform to prescribed requirements.

4.1.1 Records. Records of examinations and tests performed by or for the contractor shall be maintained by the contractor and made available to the Government, upon the Government's request, at any time, or from time to time, during the performance of the contract and for a period of three (3) years after delivery of the supplies to which such records relate.

4.1.2 Inspection. Inspection, as used in this specification, is defined as both examination (such as visual or auditory investigation without the use of special laboratory appliances or procedures) and testing (determination by technical means of physical and chemical properties) of the item.

4.2 Sampling.

4.2.1 For examination. Sampling for examination shall be in accordance with MIL-STD-105 and table III. Unit of product shall be one linear foot of tubing. No more than three linear feet shall be taken from one length of tubing (see table II).

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TABLE III. Sampling for examination.

	Inspection level	AQL (percent defective)
For visual examination	II	1.0
Major A	S-2	1.0
Major B	S-1	2.5
For dimensional examination		

4.2.2 For tests. Sampling for tests shall be in accordance with MIL-STD-105 and table IV. Unit of product shall be one linear foot, and acceptance number shall be zero.

TABLE IV. Sampling for tests.

Characteristic	Requirement	Test procedure
Tensile strength	3.2	4.4.1
Tensile strength after aging	3.2	4.4.2
Elongation	3.2	4.4.3

4.3 Examination. Tubing shall be examined to determine compliance with the requirements in this specification. Examination shall be in accordance with but shall not be limited to the defects listed in table V.

TABLE V. Classification of defects.

Category	Defects
Major A	
101	Tubing not free of oil, grease, powder or dust.
102	Tubing not free of cuts, fins or pits.
103	Tubing not free of porosity or blowholes.
104	Tubing not free of tack, bleeding or blooming.
Major B	
110	Lumen not free of powder, dust, pits or rough surfaces. (Tubing shall be cut lengthwise and examined macroscopically).

* 4.3.1 Dimensional examination. The tubing shall be examined for defects in dimensions. Any dimension not within the tolerance specified herein shall be considered as a defect.

4.4 Tests. Tests shall be conducted to determine compliance with specification requirements.

4.4.1 Tensile strength. Tensile strength, initial, shall be conducted in accordance with Federal Test Method Standard 601, Method No. 4111.

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4.4.2 Tensile strength after aging. Tensile strength, after air heat test, shall be conducted in accordance with Federal Test Method Standard 601, Method No. 7221.

4.4.3 Ultimate elongation. Ultimate elongation shall be conducted in accordance with Federal Test Method Standard 601, Method No. 4121.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be Level A or C as specified (see 6.2).

5.1.1 Unit of issue. One foot, in lengths as specified in 3.4 for appropriate size, constitutes one unit of issue.

5.1.2 Packaging quantities. The number of units of issue indicated in table VI shall be packaged in each unit, intermediate and exterior container, as applicable, for the required level of protection specified in the procurement document.

TABLE VI. Packaging quantities.

Size	No. of units of issue to be contained in each intermediate pkg.	No. of intermediate cartons to be overpacked in each exterior container	Exterior container
1/8	50	100	5000
3/16	50	20	1000

5.1.2.1 Packing variation permitted. If the required number of units in the entire shipment is less than the number of units specified to be overpacked in an exterior container, such units may be packed in an exterior container of suitable size and design, acceptable to a common carrier, which shall insure safe delivery to destination.

5.1.3 Level A.

5.1.3.1 Unit package. Unit package shall not be required.

5.1.3.2 Intermediate package. The number of units specified in table VI shall be formed into a coil of such diameter that the tubing shall not kink or acquire a permanent set. Each coil shall be packaged in a carton of appropriate size constructed in accordance with PPP-B-566, PPP-B-676 or PPP-B-636, class domestic. Commercial colors will be acceptable when box conforming to PPP-B-566 or PPP-B-676 is utilized. Each box shall be adequately secured to prevent accidental opening.

5.1.4 Level C. Units shall be packaged in standard commercial containers of the size and kind commonly used, which will afford the degree of protection required for shipment and use of the product for its intended purpose.

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5.2 Packing.

5.2.1 Level A.

- * 5.2.1.1 Exterior container. Exterior container shall be designed for a type 2 load and constructed in accordance with PPP-B-585, class 3, style 3; PPP-B-601, overseas type; PPP-B-621, class 2; or PPP-B-636, class weather-resistant. Closure and strapping shall be as specified in the appendix of the applicable box specification. Special requirements of applicable table shall apply for PPP-B-636 box.

5.2.1.2 Case liner. Each Level A wood box shall be lined with a water-proof case liner conforming to MIL-L-10547. Closure and sealing shall conform to applicable paragraphs of appendix thereto. Case liner shall not be required for fiberboard boxes. Fiberboard box shall be waterproofed in accordance with paragraph 30.4 of PPP-B-636.

5.2.2 Level B.

5.2.2.1 Exterior container. Exterior container shall be designed for a type 2 load and constructed in accordance with PPP-B-585, class 1, style 3; PPP-B-601, domestic type; PPP-B-621, class 1; or PPP-B-636, class domestic. Closure shall be as specified in the appendix of the applicable box specification. Fiberboard box shall be closed by method II of PPP-B-636. Special requirements of applicable table shall apply for PPP-B-636 box.

- * 5.2.3 Level C. The subject commodity shall be packed in substantial commercial containers of the type, size and kind commonly used for the purpose, so constructed as to insure acceptance and safe delivery by common or other carriers, to point of delivery called for in the contract.

5.3 Marking.

5.3.1 Interior packages. Each unit package and each intermediate package shall be marked in accordance with MIL-STD-129. When labels are utilized, waterproofing shall be required only when applicable carton is fabricated of water-resistant material. Contract or purchase order number and name of contractor shall be shown.

5.2.3 Exterior container. Exterior container shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. Rubber tubing covered by this specification is intended for use in intravenous solution administration and laboratory work.

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6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number and date of this specification.
- (b) National Stock Number (NSN).
- (c) Size required (see 1.2).
- (d) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).

6.3 This specification does not cover all types, classes, grades or sizes of the commodity indicated by the title of this specification, or those which are commercially available, but is intended to cover the types which are normally procured to meet military requirements.

* 6.4 This specification covers the following items that are listed in the Federal Supply Catalog:

<u>National Stock Number</u>	<u>Item Identification</u>
4720-00-141-9070	TUBING, NONMETALLIC, Rubber, 1/8 inch Inside Diameter, 1/32 inch Wall
4720-00-141-9080	TUBING, NONMETALLIC, Rubber, 3/16 inch Inside Diameter, 3/32 inch Wall

* 6.5 The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, 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.

Custodians:
 Army - MD
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Preparing activity:
 Defense Logistics Agency - DM

Project No. 4720-0512

Review activity:
 DoD - MB

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