AERONAUTICAL
MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 3615B

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PLASTIC TUBING
Cotton Fabric Reinforced Phenol-Formaldehyde

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for electrical insulation at low voltages and for protection from galvanic corrosion. This material has good machining qualities and good moisture resistance.

3. MATERIAL AND FABRICATION:

3.1 Tubing shall consist of laminations of fabric which have been impregnated with a thermosetting phenolic type of synthetic resin, rolled on mandrel between heated pressure rolls, and cured in oven.

3.1.1 Fabric shall be fine weave cotton and shall weigh not more than 4 oz per sq yard. Thread counts, as determined by inspection of finished tubing, shall be not less than 50 per in. in each direction (warp and fill) and not less than 140 per in. total in both warp and fill directions.

4. TECHNICAL REQUIREMENTS:

4.1 General:

4.1.1 Color: Unless otherwise specified, the color shall be natural. When other colors are specified, color shall be substantially uniform throughout the tubing. Surfaces of tubing shall be substantially free from streaks and stains.

4.1.2 Finish: Buffed, unless otherwise specified.

4.1.3 Weathering: When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.

4.1.4 Corrosion: The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metal shall not be considered objectionable.

4.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with ASTM D348-52, insofar as practicable.

4.2.1 Tensile Strength, psi, min 6,500

4.2.2 Compressive Strength (Axial), psi, min

Nominal Wall Thickness, in.	
Under 0.063	13,000
ø 0.063 to 0.125, excl	15,000
0.125 and over	18,000

Note. The term "excl" applies only to the higher figure of the specified range.

4.2.3 Density, g per cu cm, min 1.10

4.2.4 Water Absorption (24 hr immersion), % gain, max

Nominal Wall Thickness, in.	ID under 0.500 in.	ID 0.500 in. and over
0.063 and under	8.0	6.5
Over 0.063 to 0.094, incl	5.5	3.5
Over 0.094 to 0.125, incl	3.5	2.2
Over 0.125 to 0.188, incl	2.1	1.8
Over 0.188 to 0.250, incl	1.9	1.7
Over 0.250 to 0.500, incl	1.6	1.6
Over 0.500	1.5	1.5

4.3 Machinability: The product shall not split, crack, chip, or delaminate when drilled, sawed, tapped, or machined in any direction.

5. QUALITY: The product shall be uniform in quality and condition, free from blisters, wrinkles, cracks, crazing, and surface roughness, and reasonably free from other small imperfections such as scratches and dents.

6. TOLERANCES: Unless otherwise specified, the following tolerances apply:

6.1 Diameter:

Nominal Diameter Inches	Diameter Tolerance, Inch Plus and Minus ID	OD
Under 0.75	0.003	0.005
0.75 to 2.0, excl	0.004	0.005
2.0 to 4.0, incl	0.008	0.008
Over 4.0 to 12.0, incl	0.010	0.025
Over 12.0 to 18.0, incl	0.030	0.030
Over 18.0 to 24.0, incl	0.040	0.035
Over 24.0 to 48.0, incl	0.060	0.040

6.1.1 Diameter tolerance applies to ID or OD but not to both.

6.2 Wall Thickness:

Nominal Wall Thickness Inch	Wall Thickness Tolerance, Inch, Plus and Minus, ID Ranges, Inch	
	0.500 and under	Over 0.500
Under 0.063	0.010	0.008
0.063 to 0.125, excl	0.011	0.009
0.125 to 0.250, excl	0.013	0.011
0.250 to 0.500, incl	0.015	0.013

6.2.1 The term "excl" is used in 6.1 and 6.2 to apply only to the higher figure of the specified range.

6.3 Length:

Nominal Length Inches	Length Tolerance, Inch, Plus and Minus, OD Ranges, Inches		
	2.00 and under	Over 2.00 to 4.00, incl	Over 4.00
3 and under	0.010	0.010	0.030
Over 3 to 6, incl	0.010	0.015	0.030
Over 6 to 12, incl	0.015	0.020	0.030
Over 12 to 48, incl	0.030	0.030	0.050

6.4 Straightness:

Nominal OD Inches	Maximum Curvature (Depth of Arc), Inch	
	36 in. Lengths	Other Lengths
0.250 and under	0.72	$0.000555x(\text{length})^2$
Over 0.250 to 0.750, incl	0.36	$0.000277x(\text{length})^2$
Over 0.750	0.18	$0.000138x(\text{length})^2$

7. REPORTS:

7.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's material number, size, and quantity.

7.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.