AERONAUTICAL MATERIAL SPECIFICATIONS

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

AMS 3656

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Revised

POLYTETRAFLUOROETHYLENE RODS AND TUBES, EXTRUDED
TFE Fluorocarbon Resin
As Sintered

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

2. FORM: Extruded rods, tubes, and shapes.

3. APPLICATION: Primarily for mechanical parts, such as seals, back-up rings, and bearings, requiring chemical inertness at temperatures up to 500 F. When dimensional stability is important, material may be stress-relief annealed but best results will be obtained by machining parts almost to size, stress-relief annealing, and taking a thin finishing cut.

4. MATERIAL: Shall be extruded from polytetrafluoroethylene powder without admixture of fillers, pigments, or adulterants.

5. TECHNICAL REQUIREMENTS:

5.1 General:

5.1.1 Color: Background color may vary from white to mottled gray or brown. Small gray, brown, or black spots shall not in themselves be cause for rejection.

5.2 Properties: The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with listed ASTM methods insofar as practicable.

5.2.1	Tensile Strength at 77 F ± 2, psi, min	1500	Note 1
5.2.2	Elongation at 77 F ± 2, %, min		Note 1
	0.625 in. and under in diameter	75	
	Over 0.625 in. in diameter	100	
5.2.3	Dielectric Strength, v per mil, min	500	Note 2
5.2.4	Specific Gravity at 77 F ± 2	2.14 - 2.19	ASTM D792-50, Method A. Add 2 drops of a wetting agent to the water.

Note 1. Tensile strength and elongation shall be determined in accordance with ASTM D638-56T using a jaw separation rate of 2 in. per min. and measuring elongation over a 2 in. gage length. The test specimen for rods shall conform to Figure 1 except that rods 0.250 in. and under in diameter may be tested in full cross-section.

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Note 2. Dielectric strength shall be determined in accordance with ASTM D149-55T, short time test, on a 0.040 in. ± 0.001 thick specimen, using 0.0625 in. diameter electrodes with broken edges. Test shall be conducted in an oil bath. If flashover is a problem on small diameter rods, use a specimen prepared by drilling holes from opposite ends of a longer piece leaving a web 0.040 in. ± 0.001 thick in the middle of the specimen. Electrodes shall be the same as used for the wafer specimen and shall be inserted in the holes in the specimen.

5.3 Voids: The product shall be free of all macroscopic voids, cracks, and foreign inclusions as revealed by radiographic inspection or the location of such defects shall be clearly marked on the product.

6. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from foreign materials and from imperfections detrimental to fabrication, appearance, or performance of parts.

7. TOLERANCES: Unless otherwise specified, the following tolerances apply at 75 - 85 F:

7.1 Rod:

Nominal Diameter Inches	Tolerance, Inch Plus Only
0.250 and under	0.008
Over 0.250 to 0.500, incl	0.016
Over 0.500 to 0.750 incl	0.020
Over 0.750 to 1.000 incl	0.024
Over 1.000 to 1.250 incl	0.030
Over 1.250 to 1.500 incl	0.038
Over 1.500 to 1.750 incl	0.046
Over 1.750 to 2.000 incl	0.052
Over 2.000 to 2.250 incl	0.068
Over 2.250 to 2.500 incl	0.076

7.2 Tubing:

Nominal OD or ID Inches	ID Tolerance, Inch Minus Only	OD Tolerance, Inch Plus Only
Over 0.187 to 2, incl	0.062	0.062

8. REPORTS:

8.1 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 compound number, form or part number, and quantity.