SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York, N.Y. 10017

AEROSPACE MATERIAL SPECIFICATIONS

AMS 3656A

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POLYTETRAFLUOROETHYLENE EXTRUSIONS
Normal Strength, As Sintered, Radiographically Inspected

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter 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 260 C (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: 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 Ø product supplied and in accordance with the issue of specified ASTM methods listed in the latest issue of AMS 2350, insofar as practicable.

5.2.1 Tensile Strength at 23 C ± 1 (73.4 F ± 1.8), psi, min		See Note 1
Nominal Diameter, Inches		
Ø Up to 0.500, excl, and all tubes	1600	
0.500 to 1.500, incl	1700	
Over 1.500	1800	
5.2.2 Elongation at 23 C ± 1 (73.4 F ± 1.8), %, min		See Note 1
Nominal Diameter, Inches		
Ø Up to 0.500, excl, and all tubes	100	
0.500 to 1.500, incl	125	
Over 1.500	150	
5.2.3 Specific Gravity at 23 C/23 C (73.4 F/73.4 F)		ASTM D792 Add 2 drops of a wetting agent to the water
Nominal Diameter, Inches		
Ø Up to 0.500, excl, and all tubes	2.12 - 2.17	
0.500 to 1.500, incl	2.13 - 2.18	
Over 1.500	2.14 - 2.19	

5.2.4	Dielectric Strength (Short time test), v per mil, min		ASTM D149 (See Note 2)
	Nominal Diameter, Inches		
Ø	Up to 0.500, excl and all tubes	600	
	0.500 to 1.500, incl	650	
	Over 1.500	700	

Note 1. Tensile strength and elongation shall be determined in accordance with ASTM D638 using a testing speed of 2 in. per min. and measuring elongation over a 2 in. gage length. The test specimen for rod shall conform to Fig. 1 of this specification except that rods 0.250 in. and under in diameter may be tested in full cross-section.

Note 2. Specimens shall be 0.040 in. ± 0.001 thick. Test under oil using 1/16 in. diameter corrosion resistant steel electrodes with rounded edges. If flash over is a problem on small diameter rod, specimens shall be prepared by drilling holes from opposite ends of a rod section, 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 subjected to radiographic inspection. Standards for acceptance and rejection Ø shall be as agreed upon by purchaser and vendor.

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.

Ø 7. TOLERANCES: Unless otherwise specified, the following tolerances apply at 23 - 30 C (73.4 - 86 F):

7.1 Rod:

Nominal Diameter Inches	Tolerance, Inch Plus Only
Up to 0.250, incl	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.