

**AEROSPACE
MATERIAL
SPECIFICATION**

SAE AMS3658

REV. F

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Superseding AMS3658E	

Polytetrafluoroethylene (PTFE) Extrusions
Premium Strength, Sintered and Stress-Relieved
Radiographically Inspected

RATIONALE

This document has been determined to contain basic and stable technology which is not dynamic in nature.

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1. SCOPE

1.1 Form

This specification covers virgin, unfilled polytetrafluoroethylene (PTFE) in the form of extruded rods, tubes, and profiles.

1.2 Application

These products have been used typically for parts such as insulators and bushings requiring chemical inertness and dimensional stability up to 500 °F (260 °C) and better mechanical and/or electrical properties than AMS3656, but usage is not limited to such applications. For applications such as seals, back-up rings, and bearings that do not require dielectric properties and radiographic inspection it is recommended to use AMS3678/1 Grade B.

1.3 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

1.4 Types 1 and 2, which were defined in previous revisions of this specification, have been combined. For documentation which specifies Type 1 or Type 2 of this specification, all of the requirements of this specification now apply.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AMS3656 Polytetrafluoroethylene Extrusions, Normal Strength, As Sintered

AMS3678 Polytetrafluoroethylene (PTFE) Moldings and Extrusions, Unfilled, Pigmented and Filled Compounds

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D 149 Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

ASTM D 792 Specific Gravity (Relative Density) and Density of Plastics by Displacement

ASTM D 4894 Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials

3. TECHNICAL REQUIREMENTS

3.1 Material

The product shall be extruded from PTFE powder conforming to ASTM D 4894 Type IV or Type V without admixture of fillers, pigments, or adulterants, and shall be sintered and stress-relieved.

3.1.1 Color

Shall be opaque white. Minor discolorations or contamination are acceptable provided they do not have a detrimental effect on the finished product.

3.2 Properties

Extrusions shall conform to requirements shown in Table 1, Table 2, Table 3, Table 4, and 3.2.5; tests shall be performed on the extrusions supplied and in accordance with specified test methods, insofar as practicable. Properties are applicable to both types except as specified in 3.2.4.

3.2.1 Tensile Strength at 73 °F ± 2 (23 °C ± 1)

Shall be as shown in Table 1, determined in accordance with 4.3.1.

TABLE 1 - MINIMUM TENSILE STRENGTH

Form	Nominal Diameter or Distance Between Parallel Sides	Tensile Strength
	Inches (Millimeters)	psi (MPa)
Rods, Profiles	Up to 0.500 (12.70), excl	1800 (12.4)
Rods, Profiles	0.500 to 1.500 (12.70 to 13.10), incl	1900 (13.1)
Rods, Profiles	Over 1.500 (38.10)	2000 (13.8)
Tubes	All sizes	1800 (12.4)