



AEROSPACE MATERIAL SPECIFICATION	AMS3670™/1	REV. C
	Issued 1981-01 Reaffirmed 2004-06 Revised 2021-05	
Superseding AMS3670/1B		
(R) Bars, Rods, and Shapes Produced from Unfilled Polyamide-Imide (PAI) Material		

RATIONALE

This standard has been updated to include technical and editorial changes.

1. SCOPE

1.1 Form

This specification covers an unfilled polyamide-imide plastic in the form of molded or extruded bar, rod, and shapes. This is designated as Grade 2 material per AMS3670.

1.2 Application

These products have been used typically for parts requiring good dielectric properties, thermal resistance, and toughness up to 482 °F (250 °C), but usage is not limited to such applications.

1.3 Type

The type shall designate the process used to produce the bars, rods, or shapes.

Type I - Bar, Rod, or Shapes produced via the Injection Molded Process or raw material used to produce the shapes.

Type II - Bar, Rod, or Shapes produced via the Extrusion process.

Type III - Bar, Rod, or Shapes produced via the Compression Molding process.

When no type is specified, Type I shall be supplied.

2. APPLICABLE DOCUMENTS

Refer to AMS3670.

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3. TECHNICAL REQUIREMENTS

3.1 Basic Specification

The complete requirements for procuring the product described herein shall consist of this document and the latest issue of the basic specification, AMS3670.

3.2 Material

All bars, rods, and shapes shall be molded or extruded from virgin, unfilled (less than 5% additive) Polyamide-Imide (PAI) polymer.

3.3 Properties

The bar, rod, and shapes shall conform to the requirements shown in Table 1. Physical properties shall be determined on test specimens specified in the parts standard, drawing, or purchase document. If not specified, determined on post-cured test specimens produced by the indicated process and in accordance with specified test methods shall be used. Specimens for elevated temperature tests shall be held at the test temperature for not less than 30 minutes prior to testing. Values for tensile strength, elongation, flexural strength, and compressive strength shall be reported as the average of three determinations for each test; no individual value shall be less than 90% of the minimum value specified.

Table 1 - Properties

	Property	Type I	Type II	Type III	Test Method
3.3.1	Color	Brown, as approved on preproduction sample	Yellow/Mustard, as approved on preproduction sample	Yellow/Mustard, as approved on preproduction sample	
3.3.2	Tensile Strength, min average At 73 °F ± 2 °F (23 °C ± 1 °C)	23.0 kpsi (159 MPa)	18.0 kpsi (124.1 MPa)	15.0 kpsi (103.4 MPa)	ASTM D1708, Speed B, 1/8 inch specimen
	At 482 °F ± 9 °F (250 °C ± 5 °C)	6000 psi (41.4 MPa)			
3.3.3	Elongation, min average At 73 °F ± 2 °F (23 °C ± 1 °C)	9%	5%	3%	ASTM D1708, Speed B, 1/8 inch specimen
3.3.4	Flexural Strength, min average At 73 °F ± 2 °F (23 °C ± 1 °C)	28.0 kpsi (193 MPa)	20.0 kpsi (137.8 MPa)	20.0 kpsi (137.8 MPa)	ASTM D790 or ASTM D790M
	At 482 °F ± 9 °F (250 °C ± 5 °C)	8500 psi (58.6 MPa)			
3.3.5	Compressive Strength, min average At 73 °F ± 2 °F (23 °C ± 1 °C)	24.0 kpsi (165 MPa)	20.0 kpsi (137.8 MPa)	15.0 kpsi (103.4 MPa)	ASTM D695 or ASTM D695M
3.3.6	Specific Gravity at 73/73 °F (23/23 °C)	1.38 to 1.44	1.38 to 1.44	1.38 to 1.44	ASTM D792 Method A