



AEROSPACE MATERIAL SPECIFICATION



AMS 3670/1B

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Superseding AMS 3670/1A

UNFILLED POLYAMIDE-IMIDE BAR, ROD, AND SHAPES

1. SCOPE:

1.1 Form:

This specification covers an unfilled polyamide-imide plastic in the form of molded or extruded bar, rod, and shapes.

1.2 Application:

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

2. APPLICABLE DOCUMENTS:

See AMS 3670.

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, AMS 3670.

3.2 Material:

Shall be a molded, unfilled (less than 5% additive) polyamide-imide polymer.

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3.3 Properties:

The product shall conform to the requirements shown in Table 1, determined on injection-molded, post-cured test specimens and in accordance with specified test methods. 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 average value specified.

TABLE 1 - Properties

	Property	Requirement	Test Method
3.3.1	Color	Brown, as approved on preproduction sample	
3.3.2	Tensile Strength, min average At 23 °C ± 1 (73 °F ± 2) At 250 °C ± 5 (482 °F ± 9)	23.0 ksi (159 MPa) 6000 psi (41.4 MPa)	ASTM D 1708
3.3.3	Elongation, min average At 23 °C ± 1 (73 °F ± 2)	9%	ASTM D 1708
3.3.4	Flexural Strength, min average At 23 °C ± 1 (73 °F ± 2) At 250 °C ± 5 (482 °F ± 9)	28.0 ksi (193 MPa) 8500 psi (58.6 MPa)	ASTM D 790 or ASTM D 790M
3.3.5	Compressive Strength, min average At 23 °C ± 1 (73 °F ± 2)	24.0 ksi (165 MPa)	ASTM D 695 or ASTM D 695M
3.3.6	Specific Gravity at 23/23 °C (73/73 °F)	1.38 to 1.44	ASTM D 792 Method A
3.3.7	Water Absorption, max 24.0 to 24.5 hours at 23 °C ± 1 (73 °F ± 2)	0.5%	ASTM D 570
3.3.8	Heat Deflection Temperature, min 1/8 inch (3.2 mm) specimen 264 psi (1820 kPa)	260 °C (500 °F)	ASTM D 648
3.3.9	Dielectric Strength, min average Dry, short time test, 1/8 inch (3.2 mm) specimen	500 volts/mil (19.7 kV/mm)	ASTM D 149
3.3.10	Dissipation Factor, max 10^3 Hz	0.025	ASTM D 150
3.3.11	Dielectric Constant, max 10^3 Hz	3.0 to 5.0	ASTM D 150