AEROSPACE MATERIAL SPECIFICATION

AMS3670™/3	REV. C

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Superseding AMS3670/3B

(R) Bar, Rod, and Shapes Produced from 12% Graphite - 3% Polytetrafluoroethylene (PTFE) Filled Polyamide-Imide (PAI) Material

RATIONALE

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

1. SCOPE

1.1 Form

This specification covers molded or extruded bar, rod, and shapes produced from a polyamide-imide (PAI) polymer filled with 12% graphite and 3% polytetrafluoroethylene (PTFE). This is designated as Grade 3 material per AMS3670.

1.2 Application

These products have been used typically for parts requiring low coefficient of friction, wear resistance, 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 bar, rod, 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.

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.

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For more information on this standard, visit
https://www.sae.org/standards/content/AMS3670/3C/

3.2 Material

Shall be a polyamide-imide polymer filled with 12% ± 3% by weight graphite and 3% ± 1% by weight polytetrafluoroethylene (PTFE) molded or extruded into bar, rod, or shape.

3.3 Properties

The bar, rod, or 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	Black, as approved on preproduction sample	Black, as approved on preproduction sample	Black, as approved on preproduction sample	
3.3.2	Tensile Strength, min average				
	At 73 °F ± 2 °F (23 °C ± 1 °C)	16.5 kpsi (114 MPa)	12.0 kpsi (82.7 MPa)	8 kpsi (55.1 MPa)	ASTM D1708 Speed B, 1/8 inch specimen
	At 482 °F ± 9 °F (250 °C ± 5 °C)	5000 psi (34.5 MPa)			
3.3.3	Elongation, min average				
	At 73 °F ± 2 °F (23 °C ± 1 °C)	5%	2%	2%	ASTM D1708
3.3.4	Flexural Strength, min average				
	At 73 °F ± 2 °F (23 °C ± 1 °C)	23.0 kpsi (159 MPa)	20.0 kpsi (137.9 MPa)	18 kpsi (124.1 MPa)	ASTM D790 or ASTM D790M
	At 482 °F ± 9 °F (250 °C ± 5 °C)	5000 psi (34.5 MPa)			
3.3.5	Compressive Strength, min average				
	At 73 °F ± 2 °F (23 °C ± 1 °C)	18.0 kpsi (124 MPa)	17.0 kpsi (117.2 MPa)	13.0 kpsi (89.6 MPa)	ASTM D695 or ASTM D695M
3.3.6	Specific Gravity at 73/73 °F (23/23 °C)	1.43 to 1.48	1.43 to 1.48	1.43 to 1.48	ASTM D792 Method A

4. QUALITY ASSURANCE PROVISIONS

Refer to AMS3670.

5. PREPARATION FOR DELIVERY

Refer to AMS3670.

6. ACKNOWLEDGMENT

Refer to AMS3670.