

AEROSPACE MATERIAL SPECIFICATION

SAE

AMS 3644/1B

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Superseding AMS 3644/1A

Submitted for recognition as an American National Standard

PLASTIC ROD AND BAR, POLYIMIDE Unfilled, Molded

1. SCOPE:

This specification covers an unfilled polyimide plastic in the form of molded rod and bar.

2. APPLICABLE DOCUMENTS:

See AMS 3644.

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 3644.

3.2 Material:

Shall be an unfilled molded polyimide polymer.

3.2.1 Color: Shall be brown, essentially as approved on preproduction sample.

3.3 Properties:

Shall conform to the following requirements, determined in accordance with specified test methods on the product supplied; 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 (3.3.1), elongation (3.3.2), flexural strength (3.3.3), and compressive strength (3.3.4) shall be the average of three specimens for each requirement; no individual value shall be less than 90% of the minimum average value specified.

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- 3.3.1 Tensile Strength: Minimum average, determined in accordance with ASTM D 1708.
- 3.3.1.1 At 23 °C ± 1 (73 °F ± 2): 11.0 ksi (75.8 MPa)
- 3.3.1.2 At 260 °C ± 5 (500 °F ± 9): 5.0 ksi (34.5 MPa)
- 3.3.2 Elongation: Minimum average, determined in accordance with ASTM D 1708.
- 3.3.2.1 At 23 °C ± 1 (73 °F ± 2): 4%
- 3.3.2.2 At 260 °C ± 5 (500 °F ± 9): Not less than 50% of value at 23 °C (73 °F).
- 3.3.3 Flexural Strength: Minimum average, determined in accordance with ASTM D 790 or ASTM D 790M.
- 3.3.3.1 At 23 °C ± 1 (73 °F ± 2): 15.0 ksi (103 MPa)
- 3.3.3.2 At 260 °C ± 5 (500 °F ± 9): 8.00 ksi (55.2 MPa)
- 3.3.4 Compressive Strength: Minimum average, determined in accordance with (R) ASTM D 695 or ASTM D 695M.
- 3.3.4.1 At 23 °C ± 1 (73 °F ± 2): 35.0 ksi (241 MPa)
- 3.3.4.2 At 260 °C ± 5 (500 °F ± 9): 12.0 ksi (82.7 MPa)
- 3.3.5 Coefficient of Friction: Determined in accordance with ASTM D 2714 using a conforming polymeric block against a rotating steel ring without lubricant; PV = 25.0 ksi - fpm (875 MPa • mm³).
- 3.3.5.1 At 23 °C ± 1 (73 °F ± 2): 0.20 - 0.40
- 3.3.6 Specific Gravity: Determined in accordance with ASTM D 792, Method A.
- 3.3.6.1 At 23/23 °C (73/73 °F): 1.42 - 1.44
4. QUALITY ASSURANCE PROVISIONS:
See AMS 3644.
5. PREPARATION FOR DELIVERY:
See AMS 3644.
6. ACKNOWLEDGMENT:
See AMS 3644.
7. REJECTIONS:
See AMS 3644.