



AEROSPACE MATERIAL SPECIFICATION

AMS3684™

REV. C

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Superseding AMS3684B

Resin, Polyimide, Sealing
High-Temperature Resistant, 315 °C (600 °F)
Unfilled

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 a single-component, unfilled, heat-reactive, thermosetting, aromatic system which thermally cures to form a polyimide polymer structure.

1.2 Application: Primarily as a resin sealer coating for parts requiring long-term exposure up to 315°C (600°F) and short-term exposure up to 370°C (700°F).

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 2825 - Material Safety Data Sheets

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D882 - Tensile Properties of Thin Plastic Sheeting
ASTM D1824 - Apparent Viscosity of Plastisols and Organosols at Low Shear Rates by Brookfield Viscometer
ASTM D1963 - Specific Gravity of Drying Oils, Varnishes, Resins, and Related Materials at 25/25°C

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Standards:
MIL-STD-794-Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be an uncured, film-forming, unfilled, single-component, heat-reactive, thermosetting, aromatic polymer, completely dissolved in a solvent system of N-methylpyrrolidone (NMP) and aromatic hydrocarbons, which cures to form a polyimide polymer structure.

3.2 Storage Life: The resin solution, stored in unopened, airtight containers at not higher than 7°C (45°F), shall meet the requirements specified herein when tested at any time up to 6 months from date of manufacture or 30 days from date of receipt by purchaser when stored at a temperature not higher than 38°C (100°F).

3.3 Properties: Resin shall conform to the following requirements:

3.3.1 Uncured Resin: Resin, as-received, shall have the following properties; tests shall be performed on the resin supplied and in accordance with specified test methods:

3.3.1.1 Viscosity: Shall be 35 - 70 poises (3.5 - 7 Pa•s), determined in accordance with ASTM D1824, using a Brookfield Viscometer, Model LVF, with a No. 3 spindle at 12 rpm, or equivalent.

3.3.1.2 Resin Solids: Shall be 15.5 - 17.5% by weight, determined in accordance with 4.5.1.

3.3.1.3 Specific Gravity: Shall be 1.15 - 1.18, determined in accordance with ASTM D1963 using a Hubbard type pycnometer.

3.3.2 Cured Resin: Resin, cast to form a film and cured in accordance with 4.5.2, shall have the following properties; tests shall be performed in accordance with specified test methods on specimens cut from the film:

3.3.2.1 Tensile Strength and Elongation: Shall be as follows, determined in accordance with ASTM D882, Method A, at 25°C ± 3 (77°F ± 5):

	Tensile Strength		Elongation, %
	psi	(MPa)	
Minimum Average	12,000	(82.5)	15.0
Individual Minimum	10,800	(74.5)	13.5

3.4 Quality: Resin, as received by purchaser, shall be uniform in quality and condition and free from foreign materials and from imperfections detrimental to usage of the resin.