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AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE AMS 3731/2A

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Superseding AMS 3731/2

POTTING COMPOUND, EPOXY
Bisphenol A-Type
Filled, Heat Cure, Low CTE
Thermal Shock Resistant

1. SCOPE:

1.1 Form: This specification covers a filled epoxy resin formulation, supplied as a two-component system, requiring an oven cure for attainment of maximum properties.

1.2 Application: Primarily for use as a potting or sealing material where a low coefficient of thermal expansion (CTE) is desired.

1.3 Classification: Compound is classified as follows:

Type I - Gray. Resin base supplied white with curing agent black for visual monitoring of uniformity of mixing.

Type II - Color optional, either natural or colored, as ordered.

1.3.1 Type I shall be supplied unless Type II is ordered.

2. APPLICABLE DOCUMENTS: See AMS 3731.

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 3731.

3.2 Material: Shall be an epoxy-based polymer with a filler and a curing agent.

3.3 Properties: Compound shall conform to the following requirements:

3.3.1 Resin Base Compound Without Curing Agent:

3.3.1.1 Foaming: The volume of the compound shall not exceed 3 times its original volume when it is deaired at a pressure lower than 5 Torr (665 Pa) at 20° - 32°C (68° - 90°F).

3.3.2 Mixed Uncured Compound: The compound, mixed in accordance with manufacturer's instructions, shall exhibit the following properties:

3.3.2.1 Viscosity: Shall be not greater than 8000 centipoise (8.0 Pa·s) at 65°C + 1 (150°F + 2), determined within 5 min. after mixing, using a Brookfield Model LVF viscometer and No. 3 spindle at 6 revolutions per minute.

3.3.2.2 Pot Life: Usable life of the compound, defined as the time to attain double the initial viscosity determined in 3.3.2.1, shall be not less than 60 min. at 65°C ± 1 (150°F ± 2).

3.3.2.3 Curing Time: The time required to develop the cured product properties specified in 3.3.3 shall be not more than 16 hr at 65°C ± 1 (150°F ± 2) or not more than 8 hr at 95°C ± 2 (200°F ± 5).

3.3.3 Cured Product: The compound, mixed and cured in accordance with manufacturer's instructions, shall exhibit the following properties, determined in accordance with test methods listed in AMS 3731:

3.3.3.1	Flexural Strength, min	10,000 psi (70 MPa)
3.3.3.2	Izod Impact Strength, per unit of notch, min	0.30 ft-lb per in. (16 J/m)
3.3.3.3	Compressive Strength, min	20,000 psi (140 MPa)
3.3.3.4	Insulation Resistance	
3.3.3.4.1	At 23°C (73°F), min	$1x10^6$ megohms
3.3.3.4.2	At 120°C (250°F), min	$1x10^5$ megohms
3.3.3.4.3	After Hydrolytic Stability Conditioning, min	$1x10^4$ megohms
3.3.3.5	Dielectric Constant at 1 KHz, max	5.5
3.3.3.6	Dissipation Factor at 1 KHz, max	0.04
3.3.3.7	Heat Deflection Temperature at 264 psi (1.8 MPa), min	88°C (190°F)
3.3.3.8	Coefficient of Linear Thermal Expansion, max	