SAE The Engineering Society For Advancing Mobility Land Sea Air and Space

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AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 3731/6A

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Superseding AMS 3731/6

POTTING COMPOUND, EPOXY
Bisphenol A-Type
Syntactic Foam, Heat Cure

1. SCOPE:

1.1 Form: This specification covers a glass or silica microsphere-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 low density is desired.

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 curing agent, containing AMS 3571 hollow glass microspheres.

3.3 Properties: The compound shall conform to the following requirements:

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

3.3.1.1 Viscosity: Shall be not greater than 8000 centipoise (8.0 Pa·s) at 75°C (165°F), determined within 5 min. after mixing, using a Brookfield Model LVF viscometer and No. 3 spindle at 6 revolutions per minute.

3.3.1.2 Pot Life: Usable life of the compound, defined as the time to attain double the initial viscosity determined in 3.3.1.1, shall be not less than 45 min. at 75°C (165°F).

3.3.1.3 Curing Time: The time required to develop the cured product properties specified in 3.3.2 shall be not more than 16 hr at 75°C (165°F) or not more than 2 hr at 23°C (73°F) plus 3 hr at 95°C (200°F).

3.3.2 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:

3.3.2.1 Flexural Strength, min	3200 psi (22 MPa)
3.3.2.2 Izod Impact Strength, per unit of notch, min	0.12 ft-lb per in. (6.5 J/m)
3.3.2.3 Compressive Strength, min	12,000 psi (90 MPa)
3.3.2.4 Insulation Resistance	
3.3.2.4.1 At 23°C (73°F), min	$1x10^6$ megohms
3.3.2.4.2 At 120°C (250°F), min	$1x10^2$ megohms
3.3.2.4.3 After hydrolytic stability conditioning, min	$1x10^4$ megohms
3.3.2.5 Dielectric Constant at 1 KHz, max	5.0
3.3.2.6 Dissipation Factor at 1 KHz, max	0.03
3.3.2.7 Heat Deflection Temperature at 264 psi (1.8 MPa), min	70°C (160°F)
3.3.2.8 Coefficient of Linear Thermal Expansion, max	
3.3.2.8.1 From -54°C to +23°C (-65°F to +73°F)	$35x10^{-6}$ mm/mm per deg C ($20x10^{-6}$ in./in. per deg F)
3.3.2.8.2 From 23°C to 75°C (73°F to 165°F)	$50x10^{-6}$ mm/mm per deg C ($27x10^{-6}$ in./in. per deg F)
3.3.2.9 Water Absorption after 24 hr Immersion, max	0.2%
3.3.2.10 Specific Gravity, max	0.90
3.3.2.11 Flammability (extent of burning), max	1 in. (25 mm)