The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

# AEROSPACE MATERIAL SPECIFICATION

SAE AMS 3731/8B

Issued 1 OCT 1981
Revised 1 JAN 1993

Superseding AMS 3731/8A

Submitted for recognition as an American National Standard

## POTTING COMPOUND, EPOXY
Bisphenol A-Type
Filled, Heat Cure, High HDT

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of July, 1992. It is recommended, therefore, that this specification not be specified for new designs.

This cover sheet should be attached to revision "A" of the subject specification.

"NONCURRENT" refers to those materials which have previously been widely used and which may be required on some existing designs in the future. The Aerospace Materials Division, however, does not recommend these as standard materials for future use in new designs. Each of these "NONCURRENT" specifications is available from SAE upon request.



**PREPARED UNDER THE JURISDICTION OF AMS COMMITTEE "CP".**

AN AMERICAN NATIONAL STANDARD

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 3731/8A**

Issued 10-1-81
Revised 10-1-87
Superseding AMS 3731/8

## POTTING COMPOUND, EPOXY
## Bisphenol A-Type
## Filled, Heat Cure, High HDT



1. SCOPE:

1.1 Form: This specification covers an 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 high heat deflection temperature (HDT) 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 filler and a curing agent.

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 5000 centipoise (5.0 Pa•s) at 23°C (73°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 30 min. at 23°C (73°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 3 hr at 95°C (200°F) followed by not more than 16 hr at 205°C (400°F) or not more than 16 hr at 205°C (400°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 | 10,000 psi (70 MPa) |
| 3.3.2.2 | Izod Impact Strength, per unit of notch, min | 0.28 ft-lb per in. (15 J/m) |
| 3.3.2.3 | Compressive Strength, min | 15,000 psi (105 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 | $1x10^{6}$ megohms |
| 3.3.2.4.3 | After hydrolytic stability conditioning, min | $1x10^{4}$ megohms |
| 3.3.2.5 | Dielectric Constant at 1 KHz, max | 4.0 |
| 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 | 150°C (300°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 74°C (73°F to 165°F) | $45x10^{-6}$ mm/mm per deg C ($25x10^{-6}$ in./in. per deg F) |
| 3.3.2.9 | Water Absorption after 24 hr Immersion, max | 0.1% |
| 3.3.2.10 | Specific Gravity, max | 2.2 |
| 3.3.2.11 | Flammability (extent of burning), max | 1 in. (25 mm) |