

POTTING COMPOUND, EPOXY
Bisphenol A-Type
Impregnating Resin, Heat Cure, Single Component

1. SCOPE:

1.1 Form: This specification covers a single component epoxy resin formulation requiring an oven cure for attainment of maximum properties.

1.2 Application: Primarily for use in impregnating coils and other wire wound devices and where flammability resistance is not required.

2. APPLICABLE DOCUMENTS: Shall be as shown in 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 supplied as a single component containing all the necessary curing agents.

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

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

3.3.1.1 Viscosity: Shall be not greater than 1500 centipoise (1.5 Pa s) at 23°C (73°F), determined using a Brookfield Model LVF viscometer and No. 2 spindle at 12 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 40 hr at 77°C (170°F).

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AMS3731/4

3.3.1.3 Curing Time: The time required to develop the cured product properties specified in 3.2 shall be not more than 16 hr at 95°C (200°F) or not more than 6 hr at 135°C (275°F).

3.3.2 Cured Product: The compound, 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 Insulation Resistance

3.3.2.1.1 At 23°C (73°F), min 1×10^6 megohms

3.3.2.1.2 At 121°C (250°F), min 1×10^4 megohms

3.3.2.1.3 After hydrolytic stability conditioning, min 1×10^4 megohms

3.3.2.2 Dielectric Constant
at 1 KHz, max 4.0

3.3.2.3 Dissipation Factor
at 1 KHz, max 0.04

3.3.2.4 Heat Deflection Temperature
at 264 psi (1.8 MPa), min 94°C (200°F)

3.3.2.5 Coefficient of Linear Thermal Expansion, max

3.3.2.5.1 From -54°C to +23°C (-65°F to +73°F) 70×10^{-6} (mm/mm)/deg C
 $(40 \times 10^{-6}$ in. per in. per deg F)

3.3.2.5.2 From 23°C to 74°C (73°F to 165°F) 90×10^{-6} (mm/mm)/deg C
 $(50 \times 10^{-6}$ in. per in. per deg F)

3.3.2.6 Water Absorption
after 24 hr Immersion, max 0.25%

3.3.2.7 Hardness, Shore D, max 80

3.3.2.8 Specific Gravity, max 1.2

4. QUALITY ASSURANCE PROVISIONS: See AMS 3731.

5. PREPARATION FOR DELIVERY: See AMS 3731.

6. ACKNOWLEDGMENT: See AMS 3731.