



EPOXY RESIN, POTTING COMPOUND

WSS-M3L77-B2

1. SCOPE

The material defined by this specification is an inorganic particle filled two-part liquid epoxy system consisting of a resin and a hardener. This system exhibits superior high temperature electrical properties and thermal shock resistance.

2. APPLICATION

The material defined by this specification was originally used to encapsulate distributorless ignition system (DIS) coils.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.4 INDIVIDUAL COMPONENT PROPERTIES

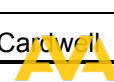
		Resin	Hardener
3.4.1	Chemical Type	Epoxy	Anhydride
3.4.2	Specific Gravity (ISO 1675/ASTM D 1963)	1.87 - 1.97	1.15 - 1.18
3.4.3	Viscosity, cps (ASTM D 2393, 5 minute dwell)		
	#1 at 20 RPM at 25 °C	N/A	50 - 80
	#6 at 10 RPM at 60 °C	20,000 - 33,000	N/A
3.4.4	Shelf life at 25 +/- 5 °C, months, min from date of manufacture	12	12

Note: Hard packing of fillers in unopened containers during the shelf life period is a cause for rejection.

Date	Action	Revisions
2003 06 30	Revised	Para 3.0 inserted; Para 3.1, 3.2, 3.3, 3.7, 3.8, 4 deleted
2000 09 26	Revised	Updated A. Cockman
1998 04 23		B. Cardwell

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3.4.5 Wire Insulation Compatibility

No visible damage
to wire insulation

Test Method: Immerse samples of the components or wires being potted in separate containers of resin and hardener for 12 h at 100 °C.

3.5 MIXED COMPONENT PROPERTIES3.5.1 Component Ratio by Weight
(Epoxy: Hardener)

100:27

3.5.2 Gel Time, minutes
(ISO 9396 at 90 °C/ASTM D 3056, 10 g at 90 °C)

93 +/- 15

3.5.4 Viscosity, cps at 25 °C
(ASTM D 2393, #4 at 10 RPM, 3 minutes dwell)

5,000 - 14,000

3.5.5 Filler Sedimentation, max

16%

Test Method: Mix resin and hardener and fill a 2 - 3 cm ID x 12 - 20 cm long glass test tube which has been liberally coated with a release agent. Let stand upright at 65 °C for 1 h, then cure according to para 3.6.1. After cooling, remove or break away the glass. Cut two sections approximately 1 cm thick, from top and bottom of the cylinder. Report the magnitude of the difference in ash content (ISO 7111/ASTM E 1131) between the two sections.

3.6 CURED RESIN PROPERTIES

3.6.1 Epoxy Resin Cure Schedule

1.25 h at 80 °C + 2.50 h at 90 °C + 1.25 h at 150 °C.

3.6.2 Tensile Strength, min
(ISO 527/ASTM D 638M)

57 MPa

3.6.3 Elongation, min
(ISO 527/ASTM D 638M)

0.7%

3.6.4 Flexural Strength, min
(ISO 178/ASTM D 790M, Method I, Procedure A)

67 MPa

3.6.5 Ash Content
(ISO 7111/ASTM E 1131)

50 +/- 5%

3.6.6 Water Absorption, 24 h, max
(ISO 62/ASTM D 570)

0.2%

3.6.7 Coefficient of Linear Thermal
Expansion, max
(ASTM D 696/DIN 53752)5.5E-05 K⁻¹3.6.8 Glass Transition Temperature, min
(IEC 1006, Method A/ASTM D 3418)

125 °C

As Cured
(para 3.6.6)

Wet