ELANTAS
Electrical Insulation

Technical Data Sheet

Electronic & Engineering Materials

ELAN-Cast® E 295 Black Resin
ELAN-Cast® C 295 Hardener

Two-Component Epoxy Potting Compound

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ELAN-Cast® E 295 Black / C 295 Epoxy

Product Description

ELAN-Cast® E 295 Black / C 295 Epoxy is a two-component, heat-cured, 100%-solids resin system.

Areas of Application

Potting and sealing of electrical and electronic equipment

Features and Benefits

- Excellent electrical properties
- Semi-rigid for thermal shock resistance
- Convenient 1:1 mix ratio
- Suitable for Class 155 service

Application Methods

- Bench Casting / Potting
- Vacuum Casting / Potting

Transportation / Storage

Store below 25°C / 77°F in a dry controlled environment out of direct sunlight. This material should be suitable for use stored under these conditions in the original sealed containers for twelve (12) months from the date of shipment.

Transportation / Storage (cont.)

Failure to store this product as recommended above may lead to deterioration in product performance.

Mix individual components thoroughly before use.

NOTE: This product is sensitive to moisture and atmospheric humidity. Containers, once opened, should be used immediately or blanketed with dry nitrogen before resealing. Product in storage vessels should be kept under vacuum or blanketed with dry air or inert gas.

This product may crystallize after extended storage. Warming to 50 - 60°C / 122 - 140°F for thirty minutes will return it to its free-flowing state. See ELANTAS PDG Technical Bulletin *TI-4000 - Procedure for Handling Crystallized Epoxy Resin* for additional information.

Health / Safety

Refer to the Material Safety Data Sheet.

See ELANTAS PDG Technical Bulletin *TI-100 - Handling Precautions for Epoxy Resins* for additional information.

Typical Properties of Material as Supplied

Property	Conditions	Value		Units
		ELAN-Cast® E 295 Black Resin	**ELAN-Cast® C 295 Hardener**	
Viscosity	25°C / 77°F	3,000 - 11,000	Paste	cP
Weight per Gallon	25°C / 77°F	10.5 – 10.9	10.4 – 10.8	pounds
Flash Point	ASTM D93	> 94 > 201	> 94 > 201	°C °F
Mix Ratio	Parts by weight Parts by volume	100 100	100 101	

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Typical Properties of Mixed Materials

Property	Test Method	Conditions	Value	Units
Viscosity	ASTM D2196	25°C / 77°F 55°C / 194°F	50,000 – 70,000 2,000 – 4,000	cP cP
Sunshine Gel Time	ASTM D3056	125°C / 77°F	150 - 180	minutes

Application / Curing Schedule

Meter-Mix:

Resin and Hardener should be pre-heated with slow agitation in their original containers to 65 - 75°C / 149 - 167°F in order to lower viscosity and facilitate air release.

Add preheated Resin and Hardener to designated meter-mix reservoirs. Heat to 90°C / 194°F and apply vacuum of 0.5 mm Hg.

Set meter-mix ratio as specified above and set mixing chamber to dispense at 85 - 90°C / 185 - 194°F.

Best results will be obtained when the units to be treated are preheated to 70 - 75°C / 158 - 167°F and using a step cure of 4 hours at 80°C / 176°F - plus - 4 hours at 120°C / 248°F - plus - 4 hours at 150°C / 302°F

For non-critical applications cure 8 hours at 115°C / 239°F – or – 6 hours at 120°C / 248°F

Bench Casting:

Follow pre-heating and vacuum guidelines above. Mix components in specified ratio until homogenous. Apply at 85 - 90°C / 185 - 194°F and cure as above

The cure schedules above are based on time after the unit reaches the specified temperature and are recommendations only. The user is responsible for determining the optimum cure conditions for his application.

Typical Mechanical Properties

Property	Test Method	Conditions	Value	Units
Shore Hardness	ASTM D2240	25°C / 77°F	D 65 – 70	
Tensile Strength	ASTM D638	25°C / 77°F	400	psi
Elongation	ASTM D638	25°C / 77°F	> 80	%
Glass Transition Temp. (Tg)	ASTM E831	TMA	44	°C
Coefficient of Thermal Expansion	ASTM E831	Below Tg Above Tg	45 135	ppm/°C ppm/°C
Thermal Conductivity	ASTM C518		0.2 – 0.3	w/m·K

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Typical Electrical Properties

Property		Conditions	Value	Units
Dielectric Strength	ASTM D149	25°C / 77°C (60 mils)	530	volts/mil
Dielectric Strength	ASTM D149	25°C / 77°C (60 mils) After 24 hours in water	490	volts/mil
Dissipation Factor	ASTM D150	1 kHz – 25°C / 77°F 1 kHz – 100°C / 212°F 1 kHz – 150°C / 302°F	0.03 0.07 0.38	
Dielectric Constant	ASTM D150	1 kHz – 25°C / 77°F 1 kHz – 100°C / 212°F 1 kHz – 150°C / 302°F	4.1 4.3 6.4	
Volume Resistivity	ASTM D257	25°C / 77°F	3.7×10^{10}	ohm-cm

The above properties are typical values and are not intended for specification use.