

## Technical Data Sheet

### Electrical Insulation

# ELAN-Cast<sup>®</sup> E 023 FR Black

## Two-Component Epoxy Potting Compound

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## ELAN-Cast® E 023 FR Black Epoxy

### Product Description

ELAN-Cast® E 023 FR Black Epoxy is a two-component, room temperature curing, 100%-solids resin system.

### Areas of Application

Potting and sealing of electrical and electronic equipment

### Features and Benefits

- UL 94 V0 listed - File E100866
- Excellent electrical properties
- Mineral-filled for improved heat dissipation
- Convenient 1:1 volume mix ratio
- Low shrinkage
- 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 nine (9) months from the date of shipment.

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

Mix individual components thoroughly before use.

### Health / Safety

Refer to the Safety Data Sheet.

See ELANTAS PDG Technical Bulletins *TI-100 - Handling Precautions for Epoxy Resins* and *TI-4005 - Epoxy Reaction Potential Hazards* for additional information.

### Typical Properties of Material as Supplied

Property	Conditions	Value		Units
		ELAN-Cast® E 023 FR Black Resin	ELAN-Cast® C 023 FR Hardener	
Viscosity	25°C / 77°F	15,000 - 30,000	15,000 - 30,000	cP
Color		Black	Amber	
Weight per Gallon	25°C / 77°F	12.9 - 13.3	13.7 - 14.1	pounds
Flash Point	ASTM D93	> 94 > 201	> 94 > 201	°C °F
Mix Ratio	Parts by weight	100	106	
	Parts by volume	100	100	

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### Typical Properties of Mixed Materials

Property	Conditions	Value	Units
Viscosity	25°C / 77°F	15,000 - 30,000	cP
Gel Time (250 grams)	25°C / 77°F	30 - 65	minutes

### Regulatory Information

Property	Test Method	Value	Units
Volatile Organic Content	ASTM D6053	0.1 <sup>[1]</sup>	pounds / gallon
RoHS Compliance	ELAN-Cast® E 023 FR Black Resin and ELAN-Cast® C 023 FR Hardener comply with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 (RoHS 2.0) as amended 31 March 2015.		

<sup>[1]</sup> VOC test methods and limits vary widely by regulatory jurisdiction and product application. The value above was obtained by curing a thin film under specific laboratory conditions (2 grams - 1 hour - 150°C). Contact your ELANTAS PDG representative regarding alternate methods.

### Curing Schedule

Mix Resin and Hardener in the ratio specified above until homogenous. Pot life is relatively short; mix only the amount of material needed for the job at hand.

For optimum results cure 24 hours at 25°C / 77°F plus 15 hours at 60°C / 140°F - or -

For less critical applications cure 72 hours at 25°C / 77°F - or - 2 hours at 80°C / 176°F

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 86	
Tensile Strength	ASTM D638	25°C / 77°F	3600	psi
Elongation	ASTM D638	25°C / 77°F	4	%
Glass Transition Temp. (T <sub>g</sub> )	ASTM E831	TMA	51	°C
Coefficient of Thermal Expansion	ASTM E831	Below T <sub>g</sub> Above T <sub>g</sub>	80 140	ppm / °C ppm / °C
Thermal Conductivity	ASTM C518		0.7	W / m·K
Flame Resistance Rating	UL 94	6 mm	V0	

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### Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Dielectric Strength	ASTM D149	25°C / 77°C - 70 mils	430	volts/mil
Dielectric Strength	ASTM D149	25°C / 77°C - 70 mils After 24 hours in water	360	volts/mil
Dissipation Factor	ASTM D150	1 kHz – 25°C / 77°F	0.02	
Dielectric Constant	ASTM D150	1 kHz – 25°C / 77°F	4.1	
Volume Resistivity	ASTM D257	25°C / 77°F	1.2 x 10 <sup>15</sup>	ohm-cm

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

ELANTAS PDG, Inc. warrants the chemical composition of its products within stated tolerances, but does not guarantee that a product will be appropriate for any particular application. Any recommendation, performance of tests or suggestion is offered merely as a guide and is not a substitute for a thorough evaluation by the user. No representative of ELANTAS PDG, Inc. has the authority to offer a warranty that a product will perform satisfactorily in manufacturing an article and no such representation should be relied upon.

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