

Technical Data Sheet

Electronic & Engineering Materials

**ELAN-Cast[®] E 471-5LL FR Black Resin
ELAN-Cast[®] C 471-5LL Hardener**

Two-Component Epoxy Potting Compound

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ELAN-Cast® E 471-5LL FR Black Epoxy

Product Description

ELAN-Cast® E 471-5LL FR Black is a two-component, room temperature curing, 100%-solids epoxy resin system.

Areas of Application

Potting and sealing of electrical and electronic equipment

Features and Benefits

- Low stress, low exotherm cure
- UL 94 V0 Listed - 2.9 mm
- Low shrinkage
- Long pot life

Application Methods

- Bench casting
- Meter-Mix

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.

Failure to store the 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 471-5LL FR Black Resin	ELAN-Cast® C 471-5LL Hardener	
Viscosity	25°C / 77°F	12,500 - 25,000	20 – 50	cP
Color		Black	Amber	
Weight per Gallon	25°C / 77°F	13.8 - 14.2	7.8 – 8.2	pounds
Flash Point	ASTM D93	> 94 > 201	> 94 > 201	°C °F
Mix Ratio	Parts by weight Parts by volume	100 100	15 26	

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Typical Properties of Mixed Materials

Property	Conditions	Value	Units
Viscosity	25°C / 77°F	1,500 - 3,000	cP
Gel Time	25°C / 77°F – 150 grams	6 - 10	hours

Regulatory Information

Property	Test Method	Value	Units
Volatile Organic Content	ASTM D6053	0.4 ^[1]	pounds / gallon
RoHS Compliance	ELAN-Cast [®] E 471-5LL FR Black Epoxy and ELAN-Cast [®] C 471-5LL 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.		

^[1] 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.

Application / Curing Schedule

Mix Resin and Hardener in the ratio above until homogeneous.

The mixture will cure for handling purposes within 24 - 72 hours at room temperature and will develop full properties after seven days.

Alternatively, cure for 4 hours at 80°C after the mixture has gelled. Room temperature cure is recommended for minimal stress on components.

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 Electrical Properties

Property	Test Method	Conditions	Value	Units
Dielectric Strength	ASTM D149	25°C / 77°F – 125 mils	510	volts/mil
Dielectric Strength	ASTM D149	25°C / 77°F – 125 mils After 24 hours in water	480	volts/mil
Dielectric Constant	ASTM D150	1 kHz – 25°C / 77°F	4.2	
Dissipation Factor	ASTM D150	1 kHz – 25°C / 77°F	0.03	
Volume Resistivity	ASTM D257	25°C / 77°C	1.5 x 10 ¹⁴	ohm-cm

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Typical Mechanical Properties

Property	Test Method	Conditions	Value	Units
Shore Hardness	ASTM D2240	25°C / 77°F	D 80	
Tensile Strength	ASTM D638	25°C / 77°F	5,700	psi
Elongation at Break	ASTM D638	25°C / 77°F	5	%
Glass Transition Temperature (T _g)	ASTM E831	TMA	50	°C
Coefficient of Thermal Expansion	ASTM E831	Below T _g Above T _g	40 195	ppm/°C ppm/°C
Thermal Conductivity	ASTM E1530		0.5	W / m·K
Water Absorption		168 h @ 25°C / 77°F	0.4	%
Weight Loss		168 h @ 135°C / 275°F	0.5	%

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 a product and no such representation should be relied upon.

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