ELANTAS
Electrical Insulation

Technical Data Sheet

Electrical Insulation

ELAN-Cast® E 471-5LLHV FR Black Resin
ELAN-Cast® C 471-5LL Hardener

Two-Component Epoxy Potting Compound

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ELAN-Cast® E 471-5LLHV FR Black Epoxy

Product Description

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

Areas of Application

Potting and sealing of electrical and electronic equipment

Conformal coating for printed circuit boards

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 471-5LLHV FR Black Resin	**ELAN-Cast® C 471-5LL Hardener**	
Viscosity	25°C / 77°F	200,000 – 270,000	20 – 50	cP
Color		Black	Amber	
Weight per Gallon	25°C / 77°F	13.0 – 13.4	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 25	
Volatile Organic Content	ASTM D6053	0.4 [1]		pounds / gallon

[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.

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Typical Properties of Mixed Materials

Property	Conditions	Value	Units
Viscosity	25°C / 77°F	25,000 – 35,000	cP
Gel Time	25°C / 77°F – 150 grams	6 – 10	hours

Application / Curing Schedule

Mix Resin and Hardener in the ratio above until homogeneous.

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

Alternatively, the resin may be cured for 4 hours at 80°C after it 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 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	5700	psi
Elongation at Break	ASTM D638	25°C / 77°F	5	%
Glass Transition Temp. (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	%

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Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Dielectric Strength	ASTM D149	25°C / 77°C – 125 mils	510	volts/mil
Dielectric Strength	ASTM D149	25°C / 77°C – 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	1.5×10^{14}	ohm-cm

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