

**Technical Data Sheet**

**Electrical Insulation**

## **CONAPOXY® FR-1047 Black**

**Two-Component Epoxy Potting Compound**



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# CONAPOXY® FR-1047 Black

## Product Description

CONAPOXY® FR-1047 Black is a two-component, mineral-filled, flame-retardant epoxy potting system.

## Areas of Application

Potting and encapsulation of electrical / electronic devices such as modules, transformers and coils as well as strain sensitive applications.

## Features and Benefits

- UL94 V-0
- Low exotherm
- Excellent thermal shock resistance
- Good electrical properties with very good arc resistance
- Multiple curative options to vary pot life and properties

## Application Methods

- Hand-mix Bench Potting / Casting
- Meter-mix Bench Potting / Casting
- Meter-mix Vacuum Potting / Casting

## 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.

This product is sensitive to moisture and atmospheric humidity. Containers, once opened, should be used immediately or blanketed with dry air or nitrogen (CONAP® Dri-Purge) before resealing.

Mix and degas individual components thoroughly prior to use.

CONAPOXY® FR-1047 Black Resin contains filler and should be well mixed prior to use until the filler is redistributed homogeneously.

## Health / Safety

Refer to the Safety Data Sheet.

## Recommended Curatives

<b>CONACURE® EA-02 provides:</b>	Room temperature cure, low viscosity, 55 minute pot life, rigid castings
<b>CONACURE® EA-028 provides:</b>	Room temperature cure, limited flexibility, 80 minute pot life, and low viscosity. Will cure in thin films at room temperature. Very good thermal shock resistance.
<b>CONACURE® EA-87 provides:</b>	Room temperature cure, limited flexibility, 75 minute pot life, and low viscosity. Requires heat to cure in thin films.

## Regulatory Information

RoHS Compliance	CONAPOXY® FR-1047 Black Resin, CONACURE® EA-02 Hardener, CONACURE® EA-028 Hardener and CONACURE® EA-87 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.
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## CONAPOXY® FR-1047 Black

### Typical Properties of Material as Supplied

Property	Conditions	Value			
		CONAPOXY® FR-1047 Black Resin	CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener
Viscosity	25°C / 77°F	58,000 cP	55 cP	36 cP	60 cP
Specific Gravity	25°C / 77°F	1.7	1.0	1.0	1.0
Color		Black	Amber	Amber	Light Amber
Mix Ratio	Parts by weight Parts by volume	100 100	4.5 7.5	11 18	13 23
Flash Point	ASTM D93	>94°C >201°F	>94°C >201°F	>94°C >201°F	>94°C >201°F

### Typical Properties of Mixed Materials

Property	Conditions	Value			Units
		CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener	
CONAPOXY® FR-1047 Black with:					
Viscosity (initial)	25°C / 77°F	15,000	2,500	6,800	cP
Gel Time	25°C / 77°F	55	80	240	minutes
Peak Exotherm	200 g 25°C / 77°F	90 194	77 170	70 158	°C °F

### Typical Electrical Properties

Property	Conditions	Value			Units
		CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener	
CONAPOXY® FR-1047 Black with:					
Dielectric Strength	ASTM D149 25°C / 77°F	400	400	400	volts / mil
Dielectric Constant	ASTM D150 100 Hz 25°C / 77°C	6.3	6.0	5.1	
Dissipation Factor	ASTM D150 100 Hz 25°C / 77°C	0.06	0.06	0.05	
Volume Resistivity	ASTM D257 25°C / 77°F	2.0 x 10 <sup>15</sup>	3.0 x 10 <sup>14</sup>	1.0 x 10 <sup>15</sup>	ohm-cm
Surface Resistivity	ASTM D257 25°C / 77°F	2.0 x 10 <sup>15</sup>	5.0 x 10 <sup>14</sup>	3.0 x 10 <sup>15</sup>	ohm

# CONAPOXY® FR-1047

## Typical Physical Properties

Property	Conditions	Value			Units
		CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener	
CONAPOXY® FR-1047 Black with:					
Color		Black	Black	Black	
Shore Hardness	ASTM D2240 25°C / 77°F	D 88	D 85	D 85	
Tensile Strength	ASTM D412 25°C / 77°F	7,000	6,600	7,600	psi
Compressive Strength	ASTM D695 25°C / 77°F	17,000	11,000	15,000	Psi
Linear Shrinkage	MIL-M-24041C 25°C / 77°F	0.7	1.1	1.1	%
Glass Transition Temperature	DSC	76 169	50 122	57 135	°C °F
Coefficient of Thermal Expansion		37	36	37	ppm / °C
Thermal Conductivity		0.7	0.7	0.6	W / m·K
Flammability	UL94 - 3 mm	V-0	passes V-0 <sup>[1]</sup>	V-0	

<sup>[1]</sup> not UL listed

## Application / Curing Schedule

Mix the CONAPOXY® FR-1047 Black Resin and respective catalyst in the ratio specified above until homogeneous. Components may be preheated up to 60°C if reduced viscosity is required. If hand-mixing, degas at >27 in. Hg vacuum before use.

Cure 24 hours at 25°C / 77°F – or – 2 hours at 60°C / 140°F for maximum properties.

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.

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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