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Technical Data Sheet

Electronic & Engineering Materials

CONAPOXY® FR-1046

Two-Component Epoxy Potting Compound

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CONAPOXY® FR-1046

Product Description

CONAPOXY® FR-1046 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

- 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 between 20 - 30°C / 68 - 86°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-1046 Black Resin contains filler that must be redistributed homogeneously.

Health / Safety

Refer to the Safety Data Sheet.

Recommended Curatives

CONACURE® EA-02 provides:	Room temperature cure, low viscosity, short 30 minute gel time, rigid castings
CONACURE® EA-028 provides:	Limited flexibility, 50 minute pot life, and low viscosity. Will cure in thin films at room temperature. Very good thermal shock resistance.
CONACURE® EA-87 provides:	Limited flexibility, 50 minute pot life, and low viscosity. Requires heat to cure in thin films

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CONAPOXY® FR-1046 Black

Typical Properties of Material as Supplied

Property	Conditions	Value			
		CONAPOXY® FR-1046 Black Resin	**CONACURE® EA-02 Hardener**	**CONACURE® EA-028 Hardener**	**CONACURE® EA-87 Hardener**
Viscosity	25°C / 77°F	17,000 cP	55 cP	36 cP	60 cP
Specific Gravity	25°C / 77°F	1.6	1.0	1.0	1.0
Color		Black	Clear Amber	Clear Amber	Light Amber
Mix Ratio	Parts by weight	100	5.5	14	18
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
CONAPOXY® FR-1046 Black with:		**CONACURE® EA-02 Hardener**	**CONACURE® EA-028 Hardener**	**CONACURE® EA-87 Hardener**	
Viscosity (initial)	25°C / 77°F	6,800	3,600	2,000	cP
Gel Time	25°C / 77°F	30	50	50	minutes
Peak Exotherm	200 g 25°C / 77°F	145 293	135 275	125 257	°C °F

Application / Curing Schedule

Mix the CONAPOXY® FR-1046 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.

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CONAPOXY® FR-1046

Typical Physical Properties

Property	Conditions	Value			Units
CONAPOXY® FR-1046 Black with:		CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener	
Color		Black	Black	Black	
Shore Hardness	ASTM D2240 25°C / 77°F	D 88	D 85	D 87	
Tensile Strength	ASTM D412 25°C / 77°F	6,600	7,700	7,700	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	1.2	0.9	0.1	%
Glass Transition Temperature	DSC	68 155	45 113	52 125	°C °F
Coefficient of Thermal Expansion		34	37	36	ppm / °C

Typical Electrical Properties

Property	Conditions	Value			Units
CONAPOXY® FR-1046 Black with:		CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener	
Dielectric Strength	ASTM D149 25°C / 77°F	375	375	375	volts / mil
Dielectric Constant	ASTM D150 100 Hz 25°C / 77°C	5.5	5.7	4.8	
Dissipation Factor	ASTM D150 100 Hz 25°C / 77°C	0.005	0.005	0.005	
Volume Resistivity	ASTM D257 25°C / 77°F	6.0×10^{15}	1.0×10^{15}	1.0×10^{16}	ohm-cm
Surface Resistivity	ASTM D257 25°C / 77°F	5.0×10^{15}	2.0×10^{15}	6.0×10^{17}	ohm

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

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