

Technical Data Sheet

Electrical Insulation

CONAPOXY® FR-1820

Two-Component Epoxy Potting Compound



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CONAPOXY® FR-1820

Product Description

CONAPOXY® FR-1820 is a two-component, filled, flame-retardant epoxy potting system.

Areas of Application

Potting and encapsulation of electronic components, modules, circuit boards, assemblies and related devices.

Features and Benefits

- UL94 V-0
- Short pot life for rapid handling
- Non-abrasive filler for reduced wear of equipment
- RoHS compliant

Application Methods

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

Transportation / Storage

Store at 20 – 30°C / 68 – 85°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 eighteen (18) months from the date of manufacture.

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-1820 Part A Resin contains fillers and should be well mixed prior to use until the filler is redistributed homogeneously.

Health / Safety

Refer to the Safety Data Sheet.

Typical Properties of Material as Supplied

Property	Conditions	Value	
		CONAPOXY® FR-1820 Part A Resin	CONAPOXY® FR-1820 Part B Hardener
Viscosity	25°C / 77°F	22,000 cP	1,960 cP
Specific Gravity	25°C / 77°F	1.65	0.98
Color		Black	Amber
Mix Ratio	Parts by weight Parts by volume	100 100	25 40
Flash Point	ASTM D93	> 94°C > 201°F	> 94°C > 201°F

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Typical Properties of Mixed Materials

Property	Conditions	Value	Units
Viscosity (initial)	25°C / 77°F	6,900	cP
Work Life (100,000 cP)	150 g @ 25°C / 77°F	15 – 18	minutes
Firm Gel Time	150 g @ 25°C / 77°F	16 - 30	minutes

Regulatory Information

Property	
RoHS Compliance	CONAPOXY® FR-1820 Part A Resin and CONAPOXY® FR-1820 Part B 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.

Application / Curing Schedule

Mix the FR-1820 Part A and FR-1820 Part B 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 before use.

Cure 24 - 36 hours at 25°C / 77°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.

Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Dielectric Strength	ASTM D149	25°C / 77°F - 1/16"	490	volts / mil
Dielectric Constant	ASTM D150	100 Hz @ 25°C / 77°F	4.3	
		1 kHz @ 25°C / 77°F	4.2	
		1 MHz @ 25°C / 77°F	3.8	
Dissipation Factor	ASTM D150	100 Hz @ 25°C / 77°F	0.04	
		1 kHz @ 25°C / 77°F	0.02	
		1 MHz @ 25°C / 77°F	0.02	
Volume Resistivity	ASTM D257	25°C / 77°F	4.6 x 10 ¹⁴	ohm-cm
Surface Resistivity	ASTM D257	25°C / 77°F	2.2 x 10 ¹⁵	ohms / sq.

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Typical Physical Properties

Property	Test Method	Conditions	Value	Units
Color		25°C / 77°F	Black	
Shore Hardness	ASTM D2240	25°C / 77°F	D 80	
Tensile Strength	ASTM D412	25°C / 77°F	4880	psi
Ultimate Elongation	ASTM D412	25°C / 77°F	3	%
Linear Shrinkage	ASTM D2566	25°C / 77°F	0.001	%
Moisture Absorption	ASTM D570	24 h @ 25°C	0.3	%
Flammability	UL94	4.8 mm	V-0	
Thermal Conductivity	ASTM D5930		0.5	W / m·K

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

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