

Technical Data Sheet

Electrical Insulation Materials

CONAPOXY® FR-1210

Two-Component Epoxy Potting Compound

ELANTAS PDG, Inc.

1405 Buffalo Street
Olean, NY 14760
USA
Tel +1 716 372-9650
Fax +1 716 372-1594
info.elantas.pdg@altana.com
www.elantas.com

5200 North Second Street
St. Louis, MO 63147
USA
Tel +1 314 621-5700
Fax +1 314 436-1030
info.elantas.pdg@altana.com
www.elantas.com

CONAPOXY® FR-1210

Product Description

CONAPOXY® FR-1210 is a mineral filled epoxy resin suitable for use in a two-component potting and casting system.

Recommended hardeners include CONACURE® EA-02, CONACURE® EA-028 and CONACURE® EA-87

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 shrinkage
- Low coefficient of expansion
- Excellent thermal shock resistance
- Good electrical properties with very good arc resistance
- Multiple hardener 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 at or 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-1210 Resin contains filler and should be well mixed prior to use until the filler is redistributed homogeneously.

CONAPOXY® FR-1210 Resin may crystallize upon storage or during shipment. If this has occurred, heat to 60°C, mix thoroughly, and cool to room temperature before processing.

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.

Hardeners

CONACURE® EA-02 provides:	Low viscosity, rigid castings
CONACURE® EA-028 provides:	Limited flexibility, low viscosity. Will cure in thin films at room temperature. Very good thermal shock resistance.
CONACURE® EA-87 provides:	Limited flexibility, low viscosity. CONACURE® EA-87 requires heat to cure in thin films.

CONAPOXY® FR-1210

Typical Properties of Material as Supplied

Property	Conditions	Value			
		CONAPOXY® FR-1210 Part A Resin	CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener
Viscosity	25°C / 77°F	95,000 cP	55 cP	40 cP	60 cP
Spec. Gravity	25°C / 77°F	1.7	1.0	1.0	1.0
Color		tan	amber	amber	light amber
Mix Ratio	parts by weight	100	5.5	14	18.5
	parts by volume	100	9.5	23	32
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		
CONAPOXY® FR-1210 cured with:			CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener
Viscosity (initial)		25°C / 77°F	10,000 cP	9,000 cP	4,500 cP
Specific Gravity		25°C / 77°F	1.6	1.5	1.5
Gel Time (minutes)		25°C / 77°F	55	80	100

Application / Curing Schedule

Mix the CONAPOXY® FR-1210 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

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 their application.

CONAPOXY® FR-1210

Typical Physical Properties

Property	Test Method	Value			Units
CONAPOXY® FR-1210 cured with:		CONACURE® EA-02 Hardener	CONACURE® EA-028 Hardener	CONACURE® EA-87 Hardener	
Color		tan	tan	tan	
Shore Hardness	ASTM D2240 25°C / 77°F	D 85	D 80	D 90	
Tensile Strength	ASTM D412 25°C / 77°F	8,000	6,500	8,000	psi
Compressive Strength	ASTM D695 25°C / 77°F	16,000	12,000	14,000	psi
Linear Shrinkage	MIL-M-24041C 25°C / 77°F	0.6	0.9	0.4	%
Glass Transition Temperature (T _g)	DSC	88 190	72 162	88 190	°C °F
Coefficient of Thermal Expansion		45	45	45	ppm/°C

Typical Electrical Properties

Property	Test Method	Value			Units
CONAPOXY® FR-1210 cured 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 1 kHz @ 25°C / 77°F	4.3	4.9	4.2	
Dissipation Factor	ASTM D150 1 kHz @ 25°C / 77°F	0.003	0.006	0.035	
Volume Resistivity	ASTM D257 25°C / 77°F	3.0 x 10 ¹⁴	3.0 x 10 ¹³	4.2 x 10 ¹⁵	ohm-cm
Surface Resistivity	ASTM D257 25°C / 77°F	9.2 x 10 ¹⁵	2.5 x 10 ¹⁵	6.8 x 10 ¹⁵	ohms/sq.

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

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