Technical Data Sheet

Electrical Insulation

CONAP® EN-5851

Two-Component Polyurethane Potting Compound

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CONAP® EN-5851

Product Description

CONAP® EN-5851 is a two-component, filled, flame-retardant polyurethane potting system.

Areas of Application

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

Features and Benefits

- UL RTI 130
- UL94 V-0
- Low stress cure for protection of sensitive components
- Low T_g (-45°C) provides excellent flexibility at low temperatures

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.

CONAP® EN-5851 Part A may crystallize upon storage or during shipment. If this has occurred, heat to 60°C, mix thoroughly, and cool to room temperature before processing.

CONAP® EN-5851 Part B 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	
		CONAP® EN-5851 Part A Urethane Prepolymer	**CONAP® EN-5851 Part B Black Curative**
Viscosity	25°C / 77°F	460 cP	17,500 cP
Specific Gravity	25°C / 77°F	1.21	1.45
Color		brown	black
Mix Ratio	Parts by weight Parts by volume	20 25	100 100
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	8,500	cP
Firm Gel Time	25°C / 77°F	10 - 15	minutes

Regulatory Information

RoHS Compliance	CONAP® EN-5851 Part A Urethane Prepolymer and CONAP® EN-5851 Part B Black Curative 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 CONAP® EN-5851 Part A and EN-5851 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 vacuum before use.

Cure 7 days at 25°C / 77°F – **or** – 16 hours at 80°C / 176°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 his application.

Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Dielectric Strength	ASTM D149	25°C / 77°F - 1/16”	460	volts / mil
Dielectric Constant	ASTM D150	100 Hz @ 25°C / 77°F 1 kHz @ 25°C / 77°F 1 MHz @ 25°C / 77°F	5.9 4.3 3.7	
Dissipation Factor	ASTM D150	100 Hz @ 25°C / 77°F 1 kHz @ 25°C / 77°F 1 MHz @ 25°C / 77°F	0.17 0.09 0.02	
Volume Resistivity	ASTM D257	25°C / 77°F	1.1×10^{15}	ohm-cm
Surface Resistivity	ASTM D257	25°C / 77°F	4.2×10^{15}	ohms / sq.

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Typical Physical Properties

Property	Test Method	Conditions	Value	Units
Shore Hardness	ASTM D2240	25°C / 77°F	A 85	
Tensile Strength	ASTM D412	25°C / 77°F	860	psi
Ultimate Elongation	ASTM D412	25°C / 77°F	180	%
Tear Strength	ASTM D624	25°C / 77°F	160	pli
Glass Transition Temp. (T_g)	ASTM E831		-45	°C
Flammability	UL94	2.8 mm	V-0	
Coefficient of Thermal Expansion	ASTM E831	below T_g above T_g	60 130	ppm / °C ppm / °C
Thermal Conductivity	ASTM D5930		0.6	W / m·K

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