

Technical Data Sheet

Electronic & Engineering Materials

CONATHANE® EN-2541

Two-Component Polyurethane Potting Compound

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CONATHANE® EN-2541

Product Description

CONATHANE® EN-2541 is a two-component, filled, flame-retardant polyurethane potting system.

It consists of CONATHANE® EN-2541 Part A Urethane Prepolymer and CONATHANE® EN-2541 Part B Curative.

Areas of Application

Potting and encapsulation of electronic components, modules, strain sensitive circuitry, transformers and coils.

Features and Benefits

- UL RTI 120
- UL94 V-0
- Low stress cure for protection of sensitive components
- Excellent dielectric properties
- Excellent thermal shock resistance

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. CONATHANE® EN-2541 Part B contains filler that must be redistributed homogeneously.

Health / Safety

Refer to the Safety Data Sheet.

Typical Properties of Material as Supplied

Property	Conditions	Value	
		CONATHANE® EN-2541 Part A Urethane Prepolymer	CONATHANE® EN-2541 Part B Curative
Viscosity	25°C / 77°F	200 cP	30,000 cP
Specific Gravity	25°C / 77°F	1.22	1.69
Color		dark amber	black or tan
Mix Ratio	Parts by weight Parts by volume	16 22	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	6,000	cP
Pot Life	1 lb. @ 25°C / 77°F	70	minutes
Gel Time	1 lb. @ 25°C / 77°F	90	minutes
	1 lb. @ 60°C / 140°F	15	minutes
Peak Exotherm	1 lb. @ 25°C / 77°F	40 / 104	°C / °F
	1 lb. @ 60°C / 140°F	81 / 178	°C / °F

Regulatory Information

RoHS Compliance	CONATHANE® EN-2541 Part A Urethane Prepolymer, CONATHANE® EN-2541 Part B Curative and CONATHANE® EN-2541 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.
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Application / Curing Schedule

Mix the CONATHANE® EN-2541 Part A and EN-2541 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 5 – 7 days at 25°C / 77°F – or – 6 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 his application.

Typical Physical Properties

Property	Test Method	Conditions	Value	Units
Color	Visual	25°C / 77°F	black or tan	
Shore Hardness	ASTM D2240	25°C / 77°F	D 70	
Heat Stability (weight loss)		7 d @ 130°C / 266°F	0.6	%
Tensile Strength	ASTM D412	25°C / 77°F	1,600	psi
Ultimate Elongation	ASTM D412	25°C / 77°F	40	%
Linear Shrinkage			0.65	%
Coefficient of Thermal Expansion	ASTM E831		150	ppm / °C

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Typical Physical Properties (continued)

Property	Test Method	Conditions	Value	Units
Water Absorption	ASTM D570	24 h @ 25°C / 77°F	+ 0.19	%
Thermal Conductivity	ASTM D5930		0.3	W / m·K
Thermal Shock (Oliphant Washer)	MIL-I-16923E	-65°C to 130°C	10 cycles	pass
Flammability	UL94	3.0 mm	V-0	

Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Dielectric Strength	ASTM D149	1/16" @ 25°C / 77°F	500	volts / mil
Dielectric Constant	ASTM D150	1 kHz @ 25°C / 77°F	4.3	
		1MHz @ 25°C / 77°F	3.8	
		1 kHz @ 130°C / 266°F	7.4	
		1MHz @ 130°C / 266°F	4.7	
Dissipation Factor	ASTM D150	1 kHz @ 25°C / 77°F	0.02	
		1MHz @ 25°C / 77°F	0.01	
		1 kHz @ 130°C / 266°F	0.36	
		1MHz @ 130°C / 266°F	0.06	
Arc Resistance	ASTM D495		>120	seconds
Volume Resistivity	ASTM D257	25°C / 77°F	1.6 x 10 ¹⁴	ohm-cm
		130°C / 266°F	3.7 x 10 ⁹	ohm-cm
Surface Resistivity	ASTM D257	25°C / 77°F	1.0 x 10 ¹⁴	ohms / sq.
		130°C / 266°F	5.4 x 10 ⁹	ohms / sq.

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

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