

**Technical Data Sheet**

**Electrical Insulation**

## **CONATHANE® EN-2550**

**Two-Component Polyurethane Potting Compound**

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# CONATHANE® EN-2550

### Product Description

CONATHANE® EN-2550 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 120
- UL94 V-0
- Low stress cure for protection of sensitive components
- Excellent thermal shock resistance

### Application Methods

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

### Transportation / Storage

Store 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-2550 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.

### Health / Safety

Refer to the Safety Data Sheet.

### Typical Properties of Material as Supplied

Property	Conditions	Value	
		CONATHANE® EN-2550 Part A Urethane Prepolymer	CONATHANE® EN-2550 Part B Curative
Viscosity	25°C / 77°F	150 cP	17,000 cP
Specific Gravity	25°C / 77°F	1.23	1.52
Color		Brown	Black, Blue, or Tan
Mix Ratio	Parts by weight	17	100
	Parts by volume	21	100

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### Typical Properties of Mixed Materials

Property	Conditions	Value	Units
Viscosity (initial)	25°C / 77°F	3,000	cP
	40°C / 104°F	1,200	cP
Work Life	25°C / 77°F	55	minutes

### Regulatory Information

Property	
RoHS Compliance	CONATHANE® EN-2550 Part A Urethane Prepolymer and CONATHANE® EN-2550 Part B 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 EN-2550 Part A and EN-2550 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 7-10 days at 25°C / 77°F – **or** – 16 hours at 60°C / 140°F – **or** – 4 hours at 100°C / 212°F

Demold time of 12 - 16 hours at 25°C / 77°F – **or** – 1 - 2 hours at 60°C / 140°F – **or** – 30 minutes at 100°C / 212°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, Blue or Tan	
Shore Hardness	ASTM D2240	25°C / 77°F	D 65	
Tensile Strength	ASTM D412	25°C / 77°F	1850	psi
Ultimate Elongation	ASTM D412	25°C / 77°F	32	%
Tear Strength	ASTM D624	25°C / 77°F	235	pli

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### Typical Physical Properties (cont.)

Property	Test Method	Conditions	Value	Units
Linear Shrinkage			0.6	%
Coefficient of Thermal Expansion	ASTM E831		160	ppm / °C
Water Absorption		24 h @ 25°C / 77°F	0.1	%
		7 d @ 25°C / 77°F	0.2	%
		7 d @ 100°C / 212°F	1.5	%
Thermal Conductivity	ASTM D5930		0.5	W / m·K
Fungus Resistance	MIL-STD-810B		Non-nutrient	
Flammability	UL94	6.0 mm	V-0	

### Typical Physical Properties – Heat Aging at 125°C / 257°F

Property	Test Method	Time at 125°C / 257°F	Value	Units
Shore Hardness	ASTM D2240	500 h	D 75	
		1000 h	D 80	
Tensile Strength	ASTM D412	500 h	2700	psi
		1000 h	3350	
Ultimate Elongation	ASTM D412	500 h	16	%
		1000 h	5	
Tear Strength	ASTM D624	500 h	300	pli
		1000 h	315	

### Typical Physical Properties – Heat Aging at 85°C / 85% Relative Humidity

Property	Test Method	Time at 85°C / 85% RH	Value	Units
Shore Hardness	ASTM D2240	500 h	D 55	
		1000 h	D 45	
Tensile Strength	ASTM D412	500 h	800	psi
		1000 h	765	
Ultimate Elongation	ASTM D412	500 h	88	%
		1000 h	100	
Tear Strength	ASTM D624	500 h	123	pli
		1000 h	124	

## CONATHANE<sup>®</sup> EN-2550

### Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Dielectric Strength	ASTM D149	25°C / 77°F – 1.6 mils	1090	volts / mil
Dielectric Constant	ASTM D150	100 Hz @ 25°C / 77°F	4.4	
		1 kHz @ 25°C / 77°F	4.1	
		1 MHz @ 25°C / 77°F	3.8	
		100 Hz @ 120°C / 248°F	6.0	
		1 kHz @ 120°C / 248°F	5.7	
		1 MHz @ 120°C / 248°F	4.8	
Dissipation Factor	ASTM D150	100 Hz @ 25°C / 77°F	0.10	
		1 kHz @ 25°C / 77°F	0.03	
		1 MHz @ 25°C / 77°F	0.02	
		100 Hz @ 120°C / 248°F	0.14	
		1 kHz @ 120°C / 248°F	0.04	
		1 MHz @ 120°C / 248°F	0.10	
Arc Resistance	ASTM D495		> 120	seconds
Insulation Resistance	ASTM D257	25°C / 77°F	3.0 x 10 <sup>13</sup>	ohms
		120°C / 248°F	1.2 x 10 <sup>10</sup>	ohms
Volume Resistivity	ASTM D257	25°C / 77°F	2.1 x 10 <sup>14</sup>	ohm-cm
		120°C / 248°F	1.4 x 10 <sup>11</sup>	ohm-cm
Surface Resistivity	ASTM D257	25°C / 77°F	6.1 x 10 <sup>17</sup>	ohms / sq.
		120°C / 248°F	7.8 x 10 <sup>11</sup>	ohms / sq.

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

ELANTAS PDG, Inc. warrants the chemical composition of its products within stated tolerances, but does not guarantee that a product will be appropriate for any particular application. Any recommendation, performance of tests or suggestion is offered merely as a guide and is not a substitute for a thorough evaluation by the user. No representative of ELANTAS PDG, Inc. has the authority to offer a warranty that a product will perform satisfactorily in manufacturing an article and no such representation should be relied upon.

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