Technical Data Sheet

Electrical Insulation

CONATHANE® EN-2550

Two-Component Polyurethane 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

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 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.

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.

CONATHANE® EN-2550 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	
		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 Parts by volume	17 21	100 100

CONATHANE® EN-2550

Typical Properties of Mixed Materials

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

CONATHANE® EN-2550

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 7 d @ 25°C / 77°F 7 d @ 100°C / 212°F	0.1 0.2 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 1000 h	D 75 D 80	
Tensile Strength	ASTM D412	500 h 1000 h	2700 3350	psi
Ultimate Elongation	ASTM D412	500 h 1000 h	16 5	%
Tear Strength	ASTM D624	500 h 1000 h	300 315	pli

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 1000 h	D 55 D 45	
Tensile Strength	ASTM D412	500 h 1000 h	800 765	psi psi
Ultimate Elongation	ASTM D412	500 h 1000 h	88 100	% %
Tear Strength	ASTM D624	500 h 1000 h	123 124	pli pli

CONATHANE® 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 1 kHz @ 25°C / 77°F 1 MHZ @ 25°C / 77°F 100 Hz @ 120°C / 248°F 1 kHz @ 120°C / 248°F 1 MHz @ 120°C / 248°F	4.4 4.1 3.8 6.0 5.7 4.8	
Dissipation Factor	ASTM D150	100 Hz @ 25°C / 77°F 1 kHz @ 25°C / 77°F 1 MHZ @ 25°C / 77°F 100 Hz @ 120°C / 248°F 1 kHz @ 120°C / 248°F 1 MHz @ 120°C / 248°F	0.10 0.03 0.02 0.14 0.04 0.10	
Arc Resistance	ASTM D495		> 120	seconds
Insulation Resistance	ASTM D257	25°C / 77°F 120°C / 248°F	3.0×10^{13} 1.2×10^{10}	ohms ohms
Volume Resistivity	ASTM D257	25°C / 77°F 120°C / 248°F	2.1×10^{14} 1.4×10^{11}	ohm-cm ohm-cm
Surface Resistivity	ASTM D257	25°C / 77°F 120°C / 248°F	6.1×10^{17} 7.8×10^{11}	ohms / sq. ohms / sq.

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