

Technical Data Sheet

Electrical Insulation

CONATHANE® EN-16

Two-Component Polyurethane Potting Compound & Encapsulant

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CONATHANE® EN-16

Product Description

CONATHANE® EN-16 is an unfilled, two-component, room temperature curing, 100%-solids polyurethane system.

It consists of CONATHANE® EN-16 Part A Urethane Prepolymer and CONATHANE® EN-16 Curative.

Areas of Application

Polyether-based system primarily intended for use as a molding, encapsulating and potting compound for harness breakouts, watertight electrical connectors, cables and cable end seals.

Other applications include casting and molding of mechanical parts and lining material for pumps, chutes and conveyors requiring outstanding abrasion resistance.

Features and Benefits

- Conforms to MIL-M-24041C: PRO 20
- Excellent hydrolytic stability
- Thermal shock resistant
- Non-MBOCA curing system
- Excellent resistance to oils, gasoline, JP-4 fuel and seawater
- Non-nutrient for fungus
- Cartridge-friendly 4:1 volumetric ratio

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 individual components thoroughly before use.

CONATHANE® EN-16 Part A and EN-16 Part B 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		Units
		CONATHANE® EN-16 Part A Urethane Prepolymer	CONATHANE® EN-16 Part B Curative	
Viscosity	25°C / 77°F	5,880	520	cP
Specific Gravity	25°C / 77°F	1.06	1.06	
Appearance		Amber	Amber	
Mix Ratio	Parts by weight	100	25	
	Parts by volume	100	25	

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Typical Properties of Mixed Materials

Property	Conditions	Value	Units
Viscosity (initial)	25°C / 77°F	4,000	cP
Work Life	25°C / 77°F	30	minutes

Regulatory Information

RoHS Compliance	CONATHANE® EN-16 Part A Urethane Prepolymer and CONATHANE® EN-16 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.
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Application / Curing Schedule

Mix the EN-16 Part A and EN-16 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.

EN-16 potting compound and encapsulant may be applied by ordinary casting techniques or by injection molding techniques. For most injection molding applications, injection pressures of 40 – 120 psi are generally used. If molding compound is injected at elevated temperatures (60°C / 140°F to 82°C / 180°F), lower injection pressures (10 – 30 psi) should be used to prevent air from being entrapped in the compound.

Best results are obtained when the part being molded and the mold itself are approximately 10 - 20°F (5 – 10°C) warmer than the compound being injected. It is recommended that injection holes be located in the bottom of the mold and air bleed holes located in the top of prevent air pockets in the mold.

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.

To approve adhesion, three primers have been developed for use with the EN-16. CONAP® AD-1146 is recommended for metals, CONAP® PR-1167 for neoprene and CONAP® AD-1161 for polyvinyl chloride.

Molds may be coated with CONAP® MR-5002 mold release to ensure easy removal of cast parts.

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Typical Mechanical Properties

Property	Test Method	Conditions	Value	Units
Appearance	Visual	25°C / 77°F	amber	
Shore Hardness	ASTM D2240	25°C / 77°F	A 80	
Compression Set	ASTM D395	Method B	44	%
Tensile Strength	ASTM D412	25°C / 77°F 100% modulus 300% modulus	4,200 720 1,300	psi psi psi
Ultimate Elongation	ASTM D412	25°C / 77°F	510	%
Tear Strength	ASTM D624	25°C / 77°F	420	pli
Moisture Absorption	MIL-M-24041C	24 h @ 93°C / 200°F	2.6	%
Fungus Resistance	MIL-E-5272C		non-nutrient	

Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Dielectric Strength	ASTM D149	25°C / 77°F – 1/16"	480	volts / mil
Dielectric Constant	ASTM D150	100 Hz @ 25°C / 77°F 1 kHz @ 25°C / 77°F 1 MHz @ 25°C / 77°F	6.6 6.4 4.9	
Dissipation Factor	ASTM D150	100 Hz @ 25°C / 77°F 1 kHz @ 25°C / 77°F 1 MHz @ 25°C / 77°F	0.03 0.03 0.08	
Volume Resistivity	ASTM D257	25°C / 77°F	1.4 x 10 ¹²	ohm-cm
Surface Resistivity	ASTM D257	25°C / 77°F	1.7 x 10 ¹⁴	ohms / sq.
Insulation Resistance	MIL-M-24041C	25°C / 77°F	1.5 x 10 ¹¹	ohms

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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