

**Technical Data Sheet**

**Electrical Insulation**

## **CONATHANE<sup>®</sup> CE-1164**

**Single-Component Polyurethane Conformal Coating**

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## CONATHANE® CE-1164

### Product Description

CONATHANE® CE-1164 is a solvent-borne, single-component, transparent, fast-curing polyurethane conformal coating

### Areas of Application

CONATHANE® CE-1164 provides an excellent electrical and moisture barrier for thin film applications on components and printed circuit boards.

### Features and Benefits

- QPL listed for MIL-I-46058C for Type UR
- Excellent hydrolytic stability
- UL94 V-0
- Flexible coating
- Excellent adhesion to phenolic and epoxy-glass laminates; even in harsh environments
- Fluorescent under UV lighting

### Application Methods

- Spray Coating
- Dip Coating
- Brush Applied

### 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.

### Health / Safety

CAUTION: Material is flammable. Do NOT use in the presence of open flames or sparks.

Refer to the Safety Data Sheet for additional information.

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### Typical Properties of Material as Supplied

Property	Conditions	Value	Units
Viscosity	25°C / 77°F	100	cP
Specific Gravity	25°C / 77°F	1.05	
Appearance		Clear, light amber	
Solids Content	135°C for 45 min.	50	%
Flash Point	ASTM D93	7 45	°C °F

## CONATHANE® CE-1164

### Regulatory Information

Property	Test Method	Value	Units
Volatile Organic Content	ASTM D3960	4.4	pounds / gallon
RoHS Compliance	CONATHANE® CE-1164 complies 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

Performance of the CE-1164 cured film is dependent on process controls used in application of the coating. Cleanliness of the substrate is a major factor in promoting adhesion and preventing under-film corrosion. Assemblies must be clean, oil-free, and dry. For specific recommendations, please request the C-115 Technical Bulletin.

CE-1164 can be applied by spraying, dipping, or brushing. If viscosity reduction is desired, dilutions of 10 – 20% by weight with CONAP® S-8 Solvent are recommended for most applications. For some spray applications, dilutions up to 1:1 by volume may be required to avoid cobwebbing.

A minimum of two coats of CE-1164 is recommended for optimal protection. A total cured film thickness of 2 ± 1 mils is recommended. CE-1164 may be recoated after the previous film is tack-free.

Curing of the film is dependent upon the evaporation of the solvents and subsequent reaction of the polymer with moisture in the air to effect cure. The coating will typically dry tack-free in 20 - 30 minutes and cure in 24 hours at 25°C / 77°F. Optimal physical and electrical properties require a post-cure of 5 – 7 days at room temperature. Alternatively, curing can be completed in 3 hours at 60°C / 140°F plus 2 - 3 days at 25°C / 77°F. CE-1164 should not be applied where relative humidity is less than 30% or more than 70%.

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
Color	Visual	25°C / 77°F	Clear Light Amber
Solvent Resistance			Excellent
Hydrolytic Stability	MIL-I-46058C	120 days @ 85°C / 95% RH	No discoloration or degradation



**CONATHANE® CE-1164**

**Typical Physical Properties (continued)**

Property	Test Method	Conditions	Value
Flexibility	MIL-I-46058C	1/8" diameter mandrel	No cracking or crazing
Thermal Shock	MIL-STD-810B	-65°C / -85°F to 125°C / 257°F	No cracking or deformation
Fungus Resistance	ASTM G-21		Non-Nutrient
Solderability			Excellent

**Typical Electrical Properties**

Property	Test Method	Conditions	Value	Units
Insulation Resistance	MIL-I-46058C	25°C / 77°F – 2 mils	2.5 x 10 <sup>13</sup>	ohms
Insulation Resistance	MIL-I-46058C	After 10 d @ 65°C / 95% RH	1.3 x 10 <sup>10</sup>	ohms
Dielectric Strength	ASTM D149	25°C / 77°F	3500	volts / mil
Dielectric Withstanding Voltage	MIL-I-46058C	1,500 VAC	No flashover or breakdown	
Dielectric Constant	ASTM D150	1 MHz @ 25°C / 77°F	2.7	
Dissipation Factor	ASTM D150	1 MHz @ 25°C / 77°F	0.02	
Volume Resistivity	ASTM D257	25°C / 77°F	1.5 x 10 <sup>15</sup>	ohm-cm

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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