

Technical Data Sheet

Electrical Insulation

CONATHANE® CE-1164 TF

One-Component Polyurethane Conformal Coating

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CONATHANE® CE-1164 TF

Product Description

CONATHANE® CE-1164 TF is a solvent-borne, transparent, fast curing polyurethane conformal coating. It is a toluene-free version of CONATHANE® CE-1164.

Areas of Application

Excellent electrical and moisture barrier for thin film applications on components and printed circuit boards.

Features and Benefits

- Toluene-free
- QPL Listed for MIL-I-46058C for Type UR
- Excellent hydrolytic stability
- UL94 V-0
- Flexible
- Excellent adhesion to phenolic and epoxy-glass laminates; even in harsh environments
- UV light fluorescent

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.

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	45 m - 135°C / 275°F	50	%
Flash Point	ASTM D93	45 113	°C °F

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Regulatory Information

Property	Test Method	Value	Units
Volatile Organic Content	ASTM D3960	4.4	pounds / gallon
RoHS Compliance	CONATHANE® CE-1164 TF Polyurethane Conformal Coating 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 TF 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 TF can be applied by spraying, dipping, or brushing. If viscosity reduction is desired, dilutions of 10 – 20% by weight are recommended for most applications. For some spray applications, dilutions up to 1:1 by volume may be required to avoid cobwebbing. Please consult a technical representative for dilution solvent recommendation.

A minimum of two coats of CE-1164 TF are recommended for optimal protection. A total cured film thickness of 2 ± 1 mils is recommended. CE-1164 TF 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. Alternatively, curing can be completed in 3 hours at 60°C / 140°F plus 2 -3 days at 25°C / 77°F. CE-1164 TF should not be used 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 Electrical Properties

Property	Test Method	Conditions	Value	Units
Insulation Resistance	MIL-I-46058C	25°C / 50% RH After 10 days @ 65°C	2.5 x 10 ¹³ 1.3 x 10 ¹⁰	ohms ohms
Dielectric Strength	ATSM D149	25°C / 77°F	3500	volts/mil
Dielectric Withstanding Voltage	MIL-I-46058C	1,500 VAC	Pass	
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 ¹⁵	ohm-cm



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Typical Physical Properties

Property	Test Method	Conditions	Value
Solvent Resistance			Excellent
Hydrolytic Stability	MIL-I-46058C	120 days @ 85°C / 95% RH	No discoloration or degradation
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 G21		Non-Nutrient
Solderability			Excellent
Inspection		UV Light	Fluorescent

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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