Technical Data Sheet

Electronic Coating Materials

CONATHANE® CE-1164

One-Component Polyurethane Conformal Coating

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CONATHANE® CE-1164

Product Description

CONATHANE® CE-1164 Conformal Coating is a solvent-based single component, transparent, fast curing polyurethane conformal coating qualified to the requirements of Mil-I-46058C.

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
- IPC-CC-830 qualified
- 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 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 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 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	
Color		Clear Light Amber	
Solids Content	135°C for 45 min	50	%
Flash Point	Closed Cup	>7 >45	°C °F

CONATHANE® CE-1164

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 Technical Bulletin *TI-4007 Application Information for CONATHANE® and CONAP® conformal coatings.*

CE-1164 can be applied by spraying, dipping, or brushing. If viscosity reduction is desired, dilutions of 10 – 20% by weight with the 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 are 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 is not recommended to be processed with humidity conditions 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 their 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
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

CONATHANE® CE-1164

Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Insulation Resistance	Mil-I-46058C	2 mil @ 25°C / 50% RH 10 d @ 65°C / 95% RH	2.5×10^{13} 1.3×10^{10}	ohms ohms
Dielectric Strength	ATSM 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	0.020	
Volume Resistivity	ASTM D257	25°C / 77°F	1.5×10^{15}	ohm-cm

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

ELANTAS North America, 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 North America, Inc. has the authority to offer a warranty that a product will perform satisfactorily in manufacturing a product and no such representation should be relied upon.