

Technical Data Sheet

Electrical Insulation

CONATHANE® CE-1155

Two-Component Polyurethane Conformal Coating

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CONATHANE® CE-1155

Product Description

CONATHANE® CE-1155 is a two-component, transparent, fast-curing polyurethane conformal coating MIL-I-46058C.

Areas of Application

CONATHANE® CE-1155 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 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 CONATHANE® CE-1155 products 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	
		CONATHANE® CE-1155 Part A Urethane Prepolymer	CONATHANE® CE-1155 Part B Curative
Appearance		Clear Amber	Clear Amber
Viscosity	25°C / 77°F	200 - 400 cP	30 - 50 cP
Solids Content	135°C for 45 min.	60 %	65 %
Specific Gravity	25°C / 77°F	1.13	0.96
Flash Point	ASTM D93	28°C 82°F	13°C 55°F
Mix Ratio	Parts by weight Parts by volume	100 100	70 82

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Typical Properties of Mixed Materials

Property	Conditions	Value	Units
Pot Life	400 g @ 25°C / 77°F	6	hours

Regulatory Information

Property	Test Method	Value	Units
Volatile Organic Content	ASTM D3960	3.2	pounds / gallon
RoHS Compliance	CONATHANE® CE-1155 Urethane Prepolymer and CONATHANE® CE-1155 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

Performance of the CE-1155 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-1155 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-1155 is recommended for optimal protection. A total cured film thickness of 2 ± 1 mils is recommended. CE-1155 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. Use the following estimates for tack-free and cure times:

Temperature	Tack-free Time	Cure Time
25°C (77°F)	5 – 6 hours	5 – 7 days
60°C (140°F)	30 – 45 minutes	3 hours
100°C (212°F)	10 – 15 minutes	1 hour

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.

CONATHANE[®] CE-1155

Typical Physical Properties

Property	Test Method	Conditions	Value
Appearance	Visual	25°C / 77°F	Clear Light Amber
Sward Hardness Pencil Hardness	ASTM D2134 ASTM D3363	25°C / 77°F 25°C / 77°F	70 HB
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

Typical Electrical Properties

Property	Test Method	Conditions	Value	Units
Insulation Resistance	MIL-I-46058C	25°C / 77°C – 2 mils	$>2.5 \times 10^{13}$	ohms
		After 10 d @ 65°C / 95% RH	6.1×10^{10}	ohms
Dielectric Strength	ASTM D149	0.002" thickness	3000	volts / mil
		0.022" thickness	1045	volts / mil
Dielectric Withstanding Voltage	MIL-I-46058C	1,500 VAC	No flashover or breakdown	
Dielectric Constant	ASTM D150	100 Hz @ 25°C / 77°F	3.5	
		1 KHz @ 25°C / 77°F	3.4	
		1 MHz @ 25°C / 77°F	3.2	
Dissipation Factor	ASTM D150	100 Hz @ 25°C / 77°F	0.01	
		1 KHz @ 25°C / 77°F	0.01	
		1 MHz @ 25°C / 77°F	0.02	
Volume Resistivity	ASTM D257	25°C / 77°F	1.2×10^{16}	ohm-cm
Surface Resistivity	ASTM D257	25°C / 77°F	5.7×10^{14}	ohms / sq.

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

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