

## SILTRUST™ ECC3050S CONFORMAL COATING

### Description

SILTRUST ECC3050S conformal coating is a low viscosity, solventless silicone coating that cures very rapidly, at room temperature, to a soft, transparent silicone rubber. SILTRUST ECC3050S conformal coating can also be cured using a low temperature oven process to reduce cure and handling times, making it an excellent candidate to consider for high volume production conformal coating of printed circuit board assemblies with temperature limited components.

### Key Features and Typical Benefits

- Fast Curing - typically ready to handle in just minutes
- Solventless Formulation
- Low Viscosity - may be used in many spray or flow coating applications
- Excellent Adhesion - outstanding long-term moisture protection
- Low Modulus/Low Stress - minimizes coating-induced CTE stress to sensitive components
- Flame retardant: UL94V-0 recognized (File No, E135148)

### Typical Physical Properties

(JIS K 6249)

<u>Property</u>	<u>Unit</u>	<u>Value</u>
<b>Typical Uncured Properties</b>		
Viscosity (23 °C)	mPa·s	550
Tack-Free Time <sup>(1)</sup> (23 °C, 50% RH)	min	5
Cure Time <sup>(1)</sup> (23 °C, 50% RH)	min	30
Cure Time <sup>(1)</sup> (60 °C, 15% RH)	min	2
<b>Typical Cured Properties (3 days at 23 °C, 50% RH)</b>		

Appearance		Translucent
Specific Gravity (23 °C)		0.98
Hardness (Type A)		22
Volume Resistivity	MΩ·cm	1 x 10 <sup>7</sup>
Dielectric Strength	kV/mm	20
Dielectric Loss (at 60Hz)		0.001
Dielectric Constant (at 60Hz)		2.60
Low Molecular Siloxane (D <sub>4</sub> - D <sub>10</sub> )	wt %	0.01

Typical physical properties are average data and should not be used as or to develop product specifications.

(<sup>1</sup>) 100μm (4 mils) thickness

## Processing Considerations

### Surface Preparation

The cleanliness of the circuit board substrate is critical to successful application of the conformal coating and its long-term performance. Surfaces must be free of moisture, dirt, wax, grease and other contaminants. Failure to remove contamination can lead to long-term failure of the circuit assembly.

### Solder Flux

Solder flux residues on the surface of a printed circuit board can greatly impact the performance of a conformal coating by interfering with coating adhesion and possibly interfering with the coating's cure mechanism. This is of particular concern when using 'no-clean' flux systems. Careful compatibility testing, with the flux system to be used, is strongly recommended.

### Application Method

ECC3050S conformal coating can be applied by spray or flow coating. Because ECC3050S conformal coating reacts with atmospheric moisture, dip coating and brush coating are not recommended for volume production operations. The use of atmospherically controlled application equipment is strongly recommended in order to maximize available work life. Spray coating should be done in an enclosed and ventilated area.

### Curing

ECC3050S conformal coating typically cures under room temperature conditions. Depending upon ambient conditions, coated circuit boards may be cured in as little as 30 minutes. The use of a low temperature oven cure (< 60 °C) may significantly reduce cure/handling times to as little as three minutes. Curing should be done in a ventilated oven. Actual cure time at a given temperature for a given part is dependent upon a variety of factors, including applied thickness of coating, heat sink characteristics of the part being coated, type of oven (i.e. convection, IR, etc.), and oven loading factors. For more detailed information of the curing properties of ECC3050S conformal coating, contact Momentive Performance Materials.

Many of Momentive's materials may meet the requirements for homogeneous materials under 2002/95/EC (RoHS). Please contact Momentive Performance Materials for additional information.

### **General Considerations for Use**

While the typical operating temperature for silicone materials ranges from -45°C to 200°C, the long-term maintenance of its initial properties is dependent upon design related stress considerations, substrate materials, frequency of thermal cycles, and other factors.

### **Patent Status**

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### **Product Safety, Handling and Storage**

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at [www.momentive.com](http://www.momentive.com) or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers)

may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

### Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

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