

## HumiSeal<sup>®</sup> 2A64 Urethane Conformal Coating Technical Data Sheet

HumiSeal<sup>®</sup> 2A64 is a two component polyurethane conformal coating supplied as Parts A and B, suitable for general printed circuit board applications. HumiSeal<sup>®</sup> 2A64 is characterized by high solids and low viscosity for ease of application and processing, and it fluoresces under UV light for inspection purposes. HumiSeal<sup>®</sup> 2A64 coating is MIL-I-46058C qualified, and IPC-CC-830 and RoHS Directive 2011/65/EC compliant.

### Properties of Mixed HumiSeal<sup>®</sup> 2A64

Density, per ASTM D1475	1.07 ± 0.03 g/cm <sup>3</sup>
Solids Content, % by weight per Fed-Std-141, Meth. 4044	55 ± 5 %
Viscosity, per Fed-Std-141, Meth. 4287	130 ± 50 centipoise
VOC	501 grams/litre
Recommended Coating Thickness	25 - 75 microns
Drying Time to Handle per Fed-Std-141, Meth. 4061	15 minutes
Curing Condition to Reach Optimum Properties	3 hrs @ 76°C
Recommended Thinner	HumiSeal <sup>®</sup> Thinner 64
Recommended Stripper	HumiSeal <sup>®</sup> Stripper 1072
Pot Life at Room Temperature	8 hours
Shelf Life at Room Temperature, DOM	12 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Coefficient of Thermal Expansion - TMA	82 ppm/°C (Below T <sub>g</sub> ) 255 ppm/°C (Above T <sub>g</sub> )
Glass Transition Temperature - DSC	12°C
Modulus - DMA	4101 MPa @ -40°C 2777 MPa @ 25°C 2 MPa @ 80°C
Flammability, per MIL-I-46058C	Self-Extinguishing
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 volts
Dielectric Breakdown Voltage, per ASTM D149	3500 volts
Dielectric Constant, at 1MHz and 25°C per ASTM D150-98	3.5
Dissipation Factor, at 1MHz and 25°C per ASTM D150-98	0.024
Insulation Resistance, per MIL-I-46058C	4.5 x 10 <sup>14</sup> ohms (450TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	4.8 x 10 <sup>10</sup> ohms (48GΩ)
Fungus Resistance, per ASTM G21	Passes

### Application of HumiSeal<sup>®</sup> 2A64

Cleanliness of the substrate is of extreme importance for the successful application of the coating. Contamination under the coating could cause problems that may lead to assembly failures. For best performance, surfaces should be free of moisture, dirt, wax, grease, flux residues and all other contaminants. If this product will be applied over "no clean" assembly materials, the user should conduct adequate testing to verify compatibility and reliability of the coated assembly.

Mixing ratio of Part A to Part B is 1:1 by volume. Prior to application, HumiSeal<sup>®</sup> 2A64 Parts A and B should be thoroughly mixed until a homogenous blend is achieved. Vigorous mixing is not recommended. The mixed coating should be allowed to settle for 30 minutes prior to use so that any air bubbles formed during blending can escape.

#### Brushing

HumiSeal<sup>®</sup> 2A64 may be applied by brush. Uniformity of the film depends on component density and operator's technique.

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### Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of prepared HumiSeal<sup>®</sup> 2A64 with HumiSeal<sup>®</sup> Thinner 64 in order to obtain a uniform film. Once optimum viscosity is determined, a controlled rate of immersion and withdrawal (5-15 cm/min) will further ensure even deposition of the coating and ultimately a uniform film. During the application, evaporation of solvent causes an increase in viscosity that should be adjusted by adding small amounts of HumiSeal<sup>®</sup> Thinner 64. Viscosity in the dip tank should be checked regularly, using a simple measuring device such as a Zahn or Ford viscosity cup.

### Spraying

HumiSeal<sup>®</sup> 2A64 can be sprayed using conventional spraying equipment. Spraying should be done in an environment with adequate ventilation so that the vapour and mist are carried away from the operator. The addition of HumiSeal<sup>®</sup> Thinner 64 is necessary to ensure a uniform spray pattern resulting in pinhole-free film. The amount of thinner and spray pressure will depend on the specific type of spray equipment used and operator technique. The recommended ratio of prepared HumiSeal<sup>®</sup> 2A64 to HumiSeal<sup>®</sup> Thinner 64 is 1:1 by volume; however the ratio may need to be adjusted to obtain a uniform coating.

### Storage

HumiSeal<sup>®</sup> 2A64 Parts A and B should be stored away from excessive heat or cold, in tightly closed containers. HumiSeal<sup>®</sup> products may be stored at temperatures of 0 to 35°C. Prior to use, allow the product to equilibrate for 24 hours at a room temperature of 18 to 32°C.

### Caution

Application of HumiSeal<sup>®</sup> Conformal Coatings should be carried out in accordance with local and National Health and Safety regulations.

The solvents in HumiSeal<sup>®</sup> Conformal Coatings are flammable. Material should not be used in presence of open flame or sparks. Use only in well-ventilated areas to avoid inhalation of vapours or spray. Avoid contact with skin and eyes.

Consult MSDS/SDS prior to use.

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