

# HumiSeal 2A64™ Urethane Conformal Coating

## Technical Data Sheet

HumiSeal 2A64™ is a two component, supplied as Parts A and B, polyurethane conformal coating suitable for general printed circuit board applications. HumiSeal 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 2A64™ coating is MIL-I-46058C qualified, and IPC-CC-830 and RoHS Directive 2002/95/EC compliant.

### Properties of Mixed HumiSeal 2A64™

Density, g/cm <sup>3</sup> per ASTM, Meth. D1475	1.07 ± .03
Solids Content, % by weight per Fed-Std-141, Meth. 4044	55 ± 5
Viscosity, centipoise per Fed-Std-141, Meth. 4287	130 ± 50
VOC, grams/litre	501
Recommended Coating Thickness, microns	25 – 75
Drying Time to Handle per Fed-Std-141, Meth. 4061	15 minutes
Optional Curing Conditions to Reach Optimum Properties	3 hrs @ 76°C
Recommended Thinner	HumiSeal Thinner 64
Recommended Stripper	HumiSeal Stripper 1072
Pot Life at Room Temperature	8 hrs
Shelf Life at Room Temperature, DOS	6 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65° 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 UL 94	HB
Dielectric Withstand Voltage, volts per MIL-I-46058C	>1,500
Dielectric Breakdown Voltage, volts per ASTM, Meth. D149	3500
Dielectric Constant, at 1MHz and 25°C per ASTM-D150-65T	3.5
Dissipation Factor, at 1MHz and 25°C per ASTM-D150-65T	0.024
Insulation Resistance, ohms per MIL-I-46058C	450 x 10 <sup>12</sup> (450T)
Moisture Insulation Resistance, ohms per MIL-I-46058C	48 x 10 <sup>9</sup> (48G)
Fungus Resistance, per ASTM-G21	Passes

### Application of HumiSeal 2A64™

Cleanliness of the substrate is of extreme importance for the successful application of a conformal coating. Surfaces must be free of moisture, dirt, wax, grease, flux residues and all other contaminants. Contamination under the coating could cause problems that may lead to assembly failures.

Mixing ratio of Part A to Part B is 1:1 by volume. Prior to application, HumiSeal 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.

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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 2A64™ with HumiSeal 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 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 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 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 2A64™ to HumiSeal Thinner 64 is 1:1 by volume, however the ratio may need to be adjusted to obtain a uniform coating.

### Brushing

HumiSeal 2A64™ may be applied by brush. Uniformity of the film depends on component density and operator's technique.

### Storage

HumiSeal 2A64™ Parts A and B should be stored away from excessive heat or cold, in tightly closed containers. HumiSeal 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

The solvents in HumiSeal 2A64™ 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 prior to use.

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