HumiSeal® 1A27NSLU Urethane Conformal Coating

Technical Data Sheet

HumiSeal® 1A27NSLU is a single component, polyurethane conformal coating suitable for general printed board applications. HumiSeal® 1A27NSLU fluoresces under UV light for ease of inspection. HumiSeal® 1A27NSLU is recognized under UL File Number E105698.

Representative Properties of HumiSeal® 1A27NSLU

Density, per ASTM D1475	0.98 g/ml @23℃
Solids Content, per ASTM D1644	50 %
Viscosity, per ASTM D1084	750 mPa/s @23℃
VOC	490 grams/liter
Drying Time to Handle	15 minutes
Recommended Coating Thickness	25 – 75 microns
Time Required to Reach Optimum Properties	30 days @RT
	30 hours @76℃
	20 hours @88℃
Recommended Thinner	HumiSeal® Thinner 901
Shelf Life at Room Temperature, DOM	12 months
Thermal Shock, 50cycles per MIL-I-46058C	-65℃ to 125℃
Coefficient of Thermal Expansion – TMA	170ppm/℃
Glass Transition Temperature – DSC	28℃
Young's Modulus	221 MPa @23℃
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 volts
Dielectric Breakdown Voltage, per ASTM D149	7500 volts
Dielectric Constant at 1MHz and 25℃ per ASTM D-150-98	3.5
Dissipation Factor at 1MHz and 25℃ per ASTM D-150-98	0.02
Insulation Resistance, per MIL-I-46058C	3.5×10^{14} ohms
Moisture insulation Resistance, per MIL-I-46058C	1.2×10^{10} ohms

Application of HumiSeal® 1A27NSLU

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 contaminations. Contamination under the coating could cause problems that may lead to assembly failures.

Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal® 1A27NSLU with HumiSeal® Thinner901 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® Thinner901. Viscosity in the dip tank should be checked regularly using a simple measuring device such as a Zahn or Ford viscosity cup.

Spraying

HumiSeal® 1A27NSLU can be sprayed using conventional spraying equipment. Spraying should be done in an environment with adequate ventilation so that the vapor and mist are carried away from the operator. The addition of HumiSeal® Thinner901 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 HumiSeal® 1A27NSLU to HumiSeal® Thinner901 is 1:1 by volume; however the ratio may need to be adjusted to obtain a uniform coating.

Brushing

HumiSeal® 1A27NSLU may be brushed with a small addition of HumiSeal® Thinner901. Uniformity of the film depends on component density and operator technique.

Storage

HumiSeal® 1A27NSLU should be stored away from excessive heat or cold, in tightly closed containers. HumiSeal® products may be stored at temperatures of 0 to 35℃. Prior to use, allow the product to equilibrate for 24 hours at a room temperature of 18 to 32℃.

Caution

Application of HumiSeal® Conformal Coatings should be carried out in accordance with local safety regulations.

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

Consult MSDS/SDS prior to use.

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