

HumiSeal 1B51NSLU™ Synthetic Rubber Conformal Coating Technical Data Sheet

HumiSeal 1B51NSLU™ is an air drying, single component, synthetic rubber conformal coating that contains methylcyclohexane solvent that is more environmentally friendly than traditional solvents. Because of its unique base polymer, HumiSeal 1B51NSLU™ has extremely low moisture vapor permeability. The coating demonstrates excellent flexibility, low stress on components, fluoresces under UV for ease of inspection and is easily repaired. HumiSeal 1B51NSLU™ is in full compliance with the RoHS Directive 2002/95/EC.

Properties of HumiSeal 1B51NSLU™

Density, g/cm ³ per ASTM, Meth. D1475	0.81 ± .02
Solids Content, % by weight per Fed-Std-141, Meth. 4044	22 ± 1.5
Viscosity, centipoise per Fed-Std-141, Meth. 4287	185 ± 30
VOC, grams/litre	708
Drying Time to Handle per Fed-Std-141, Meth. 4061	10 minutes
Recommended Coating Thickness, microns	25 - 75
Recommended Curing Conditions	24 hrs @ RT or 30 min @ 76°C
Time Required to Reach Optimum Properties	7 days
Recommended Thinner	Thinner 903, 905
Recommended Stripper	Stripper 1081
Shelf Life at Room Temperature, DOM	18 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Coefficient of Thermal Expansion - TMA	55 ppm/°C
Glass Transition Temperature - DSC	14°C
Modulus - DMA	93.1 MPa @ -20°C 73.5 MPa @ 0°C 35.3 MPa @ 20°C
Flammability, per UL 94	HB
Moisture Vapour Transmission, per JIS Z0208	15 g/m ² · day
Dielectric Withstand Voltage, volts per MIL-I-46058C	>1,500
Dielectric Breakdown Voltage, volts per ASTM, Meth. D149	4900
Dielectric Constant, at 1MHz and 25°C per ASTM-D150-65T	2.5
Dissipation Factor, at 1MHz and 25°C per ASTM-D150-65T	0.07
Insulation Resistance, ohms per MIL-I-46058C	200 x 10 ¹² (200T)
Moisture Insulation Resistance, ohms per MIL-I-46058C	10 x 10 ⁹ (10G)
Fungus Resistance, per ASTM-G21	Passes

Application of HumiSeal 1B51NSLU™

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.

Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal 1B51NSLU™ with HumiSeal Thinner 903 or 905 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 a uniform film. During the application, evaporation of solvent causes an increase in viscosity that should be adjusted by adding small amounts of Thinner 903 or 905. Viscosity in the dip tank should be checked regularly, using a simple measuring device such as a Zahn or Ford viscosity cup.

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Spraying

HumiSeal 1B51NSLU™ 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 903 or 905 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 1B51NSLU™ to HumiSeal Thinner 903 or 905 is 1:1 by volume, however the quantities may need to be adjusted to obtain a uniform coating.

Brushing

HumiSeal 1B51NSLU™ may be brushed with a small addition of HumiSeal Thinner 903 or 905. Uniformity of the film depends on component density and operator's technique.

Storage

HumiSeal 1B51NSLU™ 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 1B51NSLU™ 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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