

HumiSeal 1B31HV™ Acrylic Conformal Coating

Technical Data Sheet

HumiSeal 1B31HV™ is a fast drying, single component, acrylic conformal coating that provides excellent moisture and environmental protection for printed circuit assemblies. The final film demonstrates outstanding flexibility, fluoresces under UV light for ease of inspection and is easily repaired. HumiSeal 1B31HV™ is in full compliance with the RoHS Directive 2002/95/EC.

Properties HumiSeal 1B31HV™

Density, g/cm ³ per ASTM, Meth. D1475	0.92 ± .02
Solids Content, % by weight per Fed-Std-141, Meth. 4044	41.5 ± 2
Viscosity, centipoise per Fed-Std-141, Meth. 4287	420 ± 20
VOC, grams/litre	533
Drying Time to Handle per Fed-Std-141, Meth. 4061	10 minutes
Recommended Curing Conditions	24 hrs @ RT or 30 min @ 76°C
Time Required to Reach Optimum Properties	7 days
Recommended Thinner	HumiSeal Thinner 503
Recommended Stripper	HumiSeal Stripper 1080
Shelf Life at Room Temperature, DOM	24 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Coefficient of Thermal Expansion - TMA	170 ppm/°C below T _g 340 ppm/°C above T _g
Glass Transition Temperature - DSC	14°C
Modulus - DMA	2000 MPa @ -40°C 1050 MPa @ 20°C 8.5 MPa @ 60°C
Flammability, per UL 94	HB
Dielectric Withstand Voltage, volts per MIL-I-46058C	>1,500
Dielectric Breakdown Voltage, volts per ASTM, Meth. D149	7500
Dielectric Constant, at 1MHz and 25°C per ASTM-D150-65T	2.5
Dissipation Factor, at 1MHz and 25°C per ASTM-D150-65T	0.01
Insulation Resistance, ohms per MIL-I-46058C	800 x 10 ¹² (800T)
Moisture Insulation Resistance, ohms per MIL-I-46058C	60 x 10 ⁹ (60G)
Fungus Resistance, per ASTM-G21	Passes

Application of HumiSeal 1B31HV™

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 1B31HV™ with HumiSeal Thinner 503 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 503. 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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Brushing

HumiSeal 1B31HV™ may be brushed with a small addition of HumiSeal Thinner 503. Uniformity of the film depends on component density and operator's technique.

Storage

HumiSeal 1B31HV™ 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 1B31HV™ 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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