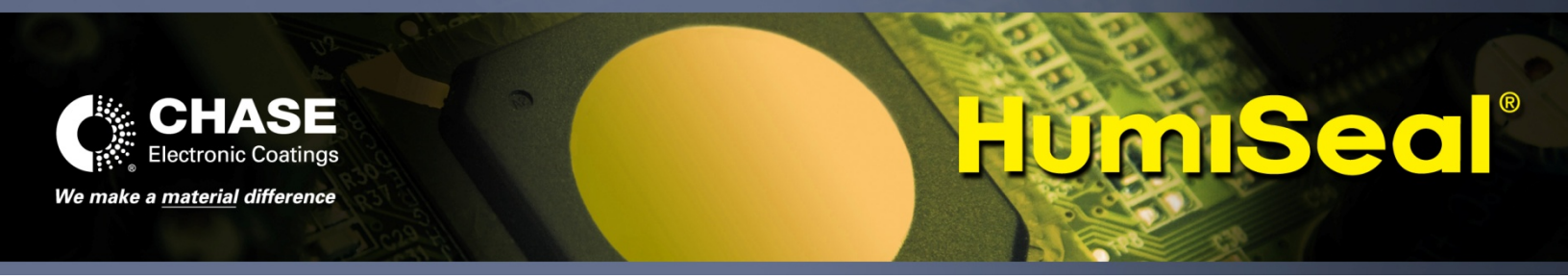

HumiSeal® 1B51 Synthetic Rubber Conformal Coating Technical Data Sheet

HumiSeal® 1B51 is a fast drying, single component, synthetic rubber conformal coating that provides excellent moisture and environmental protection for printed circuit assemblies. Because of its unique base polymer, HumiSeal® 1B51 has extremely low moisture vapour permeability. The coating demonstrates excellent flexibility, low stress on components and is easily repaired. HumiSeal® 1B51 is in full compliance with the RoHS Directive 2002/95/EC.

Properties of HumiSeal® 1B51

Density, per ASTM D1475	0.89 ± 0.01 g/cm³
Solids Content, % by weight per Fed-Std-141, Meth. 4044	22 ± 1.5 %
Viscosity, per Fed-Std-141, Meth. 4287	185 ± 30 centipoise
VOC	694 grams/litre
Drying Time to Handle per Fed-Std-141, Meth. 4061	10 minutes
Recommended Coating Thickness	25 - 75 microns
Recommended Curing Conditions	24 hrs @ RT or 30 min @ 76°C
Time Required to Reach Optimum Properties	7 days
Recommended Thinner (dipping & brushing)	HumiSeal® Thinner 535
Recommended Thinner (spraying)	HumiSeal® Thinner 521, 521EU
Recommended Stripper	HumiSeal® Stripper 1080, 1080EU
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
Moisture Vapour Transmission, per ASTM E398-03	<1 $g/m^2 \cdot day \cdot mil$
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 volts
Dielectric Breakdown Voltage, per ASTM D149	4900 volts
Dielectric Constant, at 1MHz and 25°C per ASTM D150-98	2.5
Dissipation Factor, at 1MHz and 25°C per ASTM D150-98	0.07
Insulation Resistance, per MIL-I-46058C	2.0×10^{14} ohms (200TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	1.0×10^{10} ohms (10GΩ)
Fungus Resistance, per ASTM G21	Passes

Application of HumiSeal® 1B51

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® 1B51 with HumiSeal® Thinner 535 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 HumiSeal® Thinner 535. 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® 1B51 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 521 or 521EU 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® 1B51 to HumiSeal® Thinner 521 or 521EU is 1:1 by volume; however the quantities may need to be adjusted to obtain a uniform coating.

Brushing

HumiSeal® 1B51 may be brushed with a small addition of HumiSeal® Thinner 535. Uniformity of the film depends on component density and operator's technique.

Storage

HumiSeal® 1B51 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

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

The solvents in HumiSeal® 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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