

HumiSeal 1B31EPA

Acrylic Conformal Coating

System Description

A fast air drying, single component, acrylic coating providing excellent moisture and environmental protection for printed circuit assemblies. The final film demonstrates excellent flexibility and is easily repairable. Qualified to MIL-I-46058C, Type AR. Fluoresces under UV light for ease of inspection. Complies with EPA 33/50. Non Photochemically reactive.

Properties of Liquid HumiSeal

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|--|-------------------------------------|
| Specific weight, (g/cm ³ .) per ASTM, Meth. D1475 | 0.94 ± 0.035 |
| Solids Content, % by weight per Fed-Std-141, Meth.4044 | 28 ± 3 |
| Viscosity, centipoise per Fed-Std--141, Meth. 4287 | 300 ± 100 |
| Flashpoint, °C per ASTM, Meth. D56 | 11.6°C |
| VOC (grams / liter) | 682 |
| Drying Time to Handle per Fed-Std-141, Meth.4061 | 30 minutes |
| Recommended Curing Conditions | 24 hrs @ rm. temp or 60 min. @ 76°C |
| Time Required to Reach Optimum Properties | 7 days |
| Thinner, if needed (dipping, brushing, spraying) | Thinner 604 |
| Recommended Stripper | Stripper 1080A |
| Pot Life at Room Temperature | 12 months |
| Shelf Life at Room Temperature | 18 months |

Properties of Cured HumiSeal

Thermal Properties

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|--|-----------------|
| Continuous Use Operating Range°C | -65°C to +125°C |
| Thermal Shock, per MIL-I-46058C | Passes |
| Solderability | Excellent |
| Coefficient of Thermal Expansion - DMA | 55ppm /°C |
| Glass Transition Temperature - TMA | 14°C |
| Young's Modulus - DMA | 1260 psi |

Physical Properties

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|---|--------------------|
| Clarity | Transparent |
| Build per Dip, mils, per ASTM,Meth.D823 | 2 |
| Flexibility, per MIL-I-46058C | Excellent |
| Adhesion, per ASTM, Meth. D2197 | Excellent |
| Flammability, per ASTM, Meth. D635 | Self-Extinguishing |
| Weather Resistance | Very Good |

Electrical Properties

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|---|------------------------|
| 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 |
| Moisture Resistance, ohms, per MIL-I-46058C | 60 x 10 ⁹ |

Chemical Properties

| | |
|---------------------------------|---------|
| Main Constituent | Acrylic |
| Fungus Resistance, per ASTM-G21 | Passes |
| Resistance to Chemicals | Fair |

Values are not intended for use in preparation specifications

APPLICATION

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 and all other contaminants. Contamination under the coating will cause problems, which may lead to assembly failures.

HumiSeal coatings may be applied by brush, dip or spray.

Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal 1B31EPA with HumiSeal Thinner 604 in order to obtain a uniform film. Once optimum viscosity is determined, a controlled rate of immersion and withdrawal (2 to 6" per minute) will further insure even deposition of the coating and ultimately a uniform film. During the application, evaporation of solvent causes an increase in viscosity, which should be adjusted by adding small amounts of Thinner 604. Viscosity in the dip tank should be regularly checked by the use of a simple measuring device such as a Zahn or Ford viscosity cup.

Spraying

HumiSeal Type 1B31EPA can be sprayed using conventional spraying equipment. As a rule, the addition of Thinner 604 is necessary to assure 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. The spraying should be done under an exhaust hood so that the vapour and mist are carried away from the operator. The recommended ratio of HumiSeal Type 1B31EPA to HumiSeal Thinner 604 is 1 to 1 by volume, as a starting point. The quantities may be adjusted to obtain a uniform coating.

Brushing

HumiSeal Type 1B31EPA may be brushed with a small addition of HumiSeal Thinner 604. Uniformity of the film depends on component density and operator's technique.

Storage

HumiSeal Type 1B31EPA should be stored at room temperature, away from excessive heat, in tightly closed containers. HumiSeal products may be stored at temperatures of 5-25°C. Avoid direct sunlight. Prior to use, allow the product to equilibrate for 24 hours at room temp.

Caution

The solvents in Type 1B31EPA are flammable. Do not use in presence of open flame or sparks. Avoid Inhalation of vapours or spray. Use only in well-ventilated areas. Avoid contact with skin and eyes. If contact occurs, wash with soap and water. If swallowed, call physician immediately. Refer to MSDS before use.

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