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HumiSeal®

HumiSeal® 1B58LU Synthetic Rubber Conformal Coating Technical Data Sheet

HumiSeal® 1B58LU is an air drying, single component, synthetic rubber conformal coating. Because of its unique chemistry, HumiSeal® 1B58LU has extremely low moisture vapor permeability and improved thermal stability. The coating demonstrates excellent flexibility, low stress on components, fluoresces under UV for ease of inspection and is easily repaired. HumiSeal® 1B58LU contains methylcyclohexane which is more environmentally friendly than traditional solvents. The coating is in full compliance with the RoHS Directive 2002/95/EC and IPC-CC-830.

Properties of HumiSeal® 1B58LU

Density, per ASTM D1475	0.77 ± 0.02 g/cm³
Solids Content, % by weight per Fed-Std-141, Meth. 4044	20 ± 1.5 %
Viscosity, per Fed-Std-141, Meth. 4287	240 ± 30 centipoise
VOC	628 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	HumiSeal® Thinner 903, 905
Recommended Stripper	HumiSeal® Stripper 1080
Shelf Life at Room Temperature, DOM	18 months
Thermal Shock, 50 cycles per MILI-46058C	-65 °C to 125 °C
Glass Transition Temperature - DSC	-49.6 °C
Tensile Strength, treated at 140 °C	33.6 MPa 27.0 MPa (after 1000 hrs.) 18.6 MPa (after 2000 hrs.) 11.6 MPa (after 3000 hrs.)
Extension, treated at 140 °C	503 % 484 % (after 1000 hrs.) 443 % (after 2000 hrs.) 96 % (after 3000 hrs.)
Moisture Vapor Transmission, per ASTM E398-03	5.2 $g/m^2 \cdot day \cdot mil$
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 volts
Insulation Resistance, per MIL-I-46058C	5.0×10^{14} ohms (500 TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	7.5×10^{13} ohms (75 TΩ)

Application of HumiSeal® 1B58LU

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. Otherwise, ionic or organic residues on the substrate could be trapped under the coating and cause problems with adhesion or electrical properties. The highest long term reliability for a coated printed circuit assembly will be when the conformal coating is applied over a clean, dry substrate.

The application of conformal coatings over no clean flux is a common practice. The user should perform adequate testing to confirm compatibility between the conformal coating and their particular assembly materials and process conditions. Please contact HumiSeal for additional information.

Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal® 1B58LU with HumiSeal® Thinner 903 or 905 in order to obtain a uniform film.

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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 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.

Spraying

HumiSeal® 1B58LU 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® 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® 1B58LU 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® 1B58LU 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® 1B58LU 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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