HumiSeal® 1B31 Pre-blend Acrylic Conformal Coatings Technical Data Sheet

HumiSeal® 1B31 is a fast drying, single component, acrylic conformal coating that provides excellent moisture and environmental protection for printed circuit assemblies. HumiSeal® 1B31 is also produced as pre-blended products, at a range of viscosities, suitable for a variety of applications. HumiSeal® 1B31, and its Pre-blends, demonstrate excellent flexibility, fluoresce under UV light for ease of inspection and are easily repairable. HumiSeal® 1B31 coating is MIL-I-46058C qualified, IPC-CC-830 and RoHS Directive 2011/65/EU compliant. After complete cure, the properties of HumiSeal® 1B31 Pre-Blends and HumiSeal® 1B31 are comparable.

Properties of HumiSeal® 1B31 Pre-blend Products

Product	**Viscosity** (cPs)	**Solids** (%)	**Density** (g/cm^3)	**VOC** (g/L)	**Shelf Life** (DOM, months)
1B31 PB 18 CPS	18 ± 5	15 ± 1.5	0.89 ± 0.02	747.6	12
1B31 PB 23 CPS	23 ± 5	16 ± 1.5	0.89 ± 0.02	743.2	12
1B31 PB 65 CPS	65 ± 5	24 ± 1	0.90 ± 0.02	685.8	24
1B31/505 PB 49 CPS	49 ± 5	24.5 ± 1	0.88 ± 0.02	664.4	12
1B31-245	40 ± 5	22 ± 2	0.86 ± 0.02	654.0	12
1B31/503 PB 110 CPS	110 ± 5	29 ± 2	0.90 ± 0.01	639.0	12

Recommended Coating Thickness	25 - 75 microns
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 Stripper	HumiSeal® Stripper 1080
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Coefficient of Thermal Expansion - TMA	170 ppm/°C below Tg 340 ppm/°C above Tg
Glass Transition Temperature - DSC	14°C
Modulus - DMA	2000 MPa @ -40°C 1050 MPa @ 20°C 8.5 MPa @ 60°C
Flammability, per MIL-I-46058C	Self-Extinguishing
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 volts
Dielectric Breakdown Voltage, per ASTM D149	7500 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	0.01
Insulation Resistance, per MIL-I-46058C	8.0×10^{14} ohms (800TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	6.0×10^{10} ohms (60GΩ)
Fungus Resistance, per ASTM G21	Passes

Application of HumiSeal® 1B31 Pre-blend Products

Conformal coatings can be successfully applied to substrates that have been cleaned prior to coating and also to substrates assembled with low residue “no clean” materials. Users should perform adequate testing to confirm compatibility between the conformal coating and their particular assembly materials, process conditions and cleanliness level. Please contact HumiSeal® for additional information.

HumiSeal® 1B31 Pre-blends are specifically diluted to a viscosity for immediate use. No additional dilution is required. Customers should establish which pre-blend is suitable for their equipment and application method

before commercial use. HumiSeal® Technical Support should be contacted if any further advice on pre-blends and equipment is required.

Dipping
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.

Spraying
HumiSeal® 1B31 Pre-blends are available which 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 specific pre-blend used and the pressure applied will depend on the specific type of spray equipment used and operator technique.

Brushing
HumiSeal® 1B31 Pre-blends are available which may be brushed onto surfaces. Uniformity of the film depends on specific pre-blend chosen and operator's technique.

Storage
HumiSeal® 1B31 Pre-blends 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 SDS prior to use.

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