

## HumiSeal® 1A33 LTX Products Conformal Coatings Preliminary Technical Data Sheet

HumiSeal® 1A33 LTX is a single component, polyurethane conformal coating, suitable for general printed circuit board applications. It is especially formulated with reduced xylene and toluene concentration to be fully compliant with GB30981-2020\*. HumiSeal® 1A33 LTX is also produced as pre-blended products, at a range of viscosities, suitable for a variety of applications with no further dilution required. HumiSeal® 1A33 LTX, and its Pre-blend Products, contain no free isocyanates and fluoresce under UV light for inspection purposes. HumiSeal® 1A33 LTX coating is MIL-I-46058C qualified, IPC-CC-830 and RoHS Directive 2011/65/EU compliant and recognized under UL File Number E105698.

\*Standard GB30981-2020 defines limits on VOCs and solvent usage for Conformal Coatings. Standard GB/T 23990-200 defines the test method for Solvent % analysis.

HumiSeal 1A33 LTX has the following advantages:

- Protection against moisture, salt / corrosive environments and dirt
- Easy application with automated systems
- Low moisture vapor permeability.
- Fluoresces under UV for ease of inspection and is easily repaired.
- Range of preblends thinners available for different application methods
- Compliant with GB30981-2020

### Properties of HumiSeal® 1A33 LTX Pre-blended Products

Product	Viscosity (CPS)	Solids (%)	Density (g/cm <sup>3</sup> )	VOC** (g/L)
1A33 LTX	180 ± 20	44 ± 2	0.95 ± 0.02	532
1A33 LTX/521 PB65	65 ± 5	40 ± 2	0.93 ± 0.02	559

\*\* Conformal coatings are exempt from VOC restrictions as defined in GB30981-2020

Recommended Coating Thickness	25 - 75 microns
Drying Time to Handle per Fed-Std-141, Meth. 4061	15 minutes
Optional Curing Conditions to Reach Optimum Properties	30 days @ RT 30 hours @ 76°C 20 hours @ 88°C
Recommended Stripper	HumiSeal® Stripper 1063
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Coefficient of Thermal Expansion - TMA	193 ppm/°C
Glass Transition Temperature - DSC	26°C
Modulus - DMA	27.2 MPa
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	3.6
Dissipation Factor, at 1MHz and 25°C, per ASTM D150-98	0.03
Insulation Resistance, per MIL-I-46058C	2.0 x 10 <sup>14</sup> ohms (200TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	1.6 x 10 <sup>10</sup> ohms (16GΩ)
Fungus Resistance, per ASTM G21	Passes

## Application of HumiSeal<sup>®</sup> 1A33 LTX Pre-blended Products

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.

HumiSeal<sup>®</sup> 1A33 LTX Pre-blend Products 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<sup>®</sup> Technical Support should be contacted if any further advice on Pre-blend Products and equipment is required.

### Storage

HumiSeal<sup>®</sup> 1A33 LTX and Pre-Blends should be stored away from excessive heat or cold, in tightly closed containers. HumiSeal<sup>®</sup> 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<sup>®</sup> Conformal Coatings should be carried out in accordance with local and National Health and Safety regulations.

The solvents in HumiSeal<sup>®</sup> 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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