

HumiSeal® 1A33LOS Conformal Coating Technical Data Sheet

HumiSeal® 1A33LOS is a single component, polyurethane conformal coating, suitable for general printed circuit board applications. HumiSeal® 1A33LOS is a development of HumiSeal® 1A33 with reduced odor levels and lower toxicity solvents. After complete cure, the properties of HumiSeal® 1A33 LOS and HumiSeal® 1A33 are comparable.

HumiSeal® 1A33LOS contains no free isocyanates and will fluoresce under UV light for inspection purposes. HumiSeal® 1A33LOS is compliant with RoHS Directive 2015/863/EU and China RoHS 2.

Typical Properties of HumiSeal® 1A33LOS

Density, per ASTM D1475	0.92 ± 0.02 g/cm ³
Solids Content, % by weight per Fed-Std-141, Meth. 4044	44 ± 2 %
Viscosity, per Fed-Std-141, Meth. 4287	195 ± 65 centipoise
VOC	512 grams/litre
Recommended Coating Thickness	25 - 75 microns
Drying Time to Handle per Fed-Std-141, Meth. 4061	30 minutes
Optional Curing Conditions to Reach Optimum Properties	30 days at RT 30 hours @ 76°C 20 hours @ 88°C
Recommended Thinner	HumiSeal® Thinner 905
Recommended Stripper	HumiSeal® Stripper 1063
Shelf Life at Room Temperature, DOM	24 months
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
Flammability, per UL 94	Pending
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 volts
Insulation Resistance, per MIL-I-46058C	2.0 x 10 ¹⁴ ohms (200TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	1.6 x 10 ¹⁰ ohms (16GΩ)

Application of HumiSeal® 1A33LOS

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

HumiSeal® 1A33LOS Pre-Blends are available, diluted to a specific 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 Thinner. 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® 1A33LOS 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 and spray pressure will depend on the specific type of spray equipment used and operator technique.

Brushing

HumiSeal® 1A33LOS Pre-Blends are available which may be brushed onto surfaces. Uniformity of the film depends on specific pre-blend chosen and operator technique.

Storage

HumiSeal® 1A33LOS and 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® 1A33LOS and its Pre-Blends 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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