

HumiSeal® 1A33 LOF Technical Data Sheet

HumiSeal® 1A33 LOF is a single component, polyurethane conformal coating, suitable for general printed circuit board applications. The formula of 1A33 LOF contains curing accelerants which significantly reduce curing times compared with other polyurethane coatings. High levels of chemical resistance and physical hardness can be achieved after 4 hours at 85°C.

HumiSeal® 1A33 LOF is specially formulated using reduced odour and low toxicity solvent, making it ideal for use in many situations.

Similar to other Humiseal Polyurethane coatings, 1A33 LOF provides high levels of physical and chemical protection and is supplied in a convenient 1 part solvent system, which can be cured easily. After complete cure, the properties of HumiSeal® 1A33 LOF and other HumiSeal® 1A33 products are comparable.

HumiSeal® 1A33 LOF contains no free isocyanates, toluene or xylene, and is RoHS Directive 2015/683 and RoHS 2 compliant.

Properties specific to HumiSeal® 1A33 LOF Pre-blended Products as Supplied

Product	Viscosity, CPS	Solids Content, %	Density, g/cm ³	VOC, g/L
1A33 LOF	130-260	42-47	0.90 ± 0.04	488
1A33 LOF PB65	60-75	40-44	0.87 ± 0.02	505

Properties of HumiSeal® 1A33 LOF

Density, per ASTM D1475	0.90 ± 0.04 g/cm ³
Solids Content, % by weight per Fed-Std-141, Meth. 4044	44.5 ± 2.5 %
Viscosity, per Fed-Std-141, Meth. 4287	295 ± 65 centipoise
VOC	488 grams/litre
Recommended Coating Thickness	25 - 75 microns
Drying Time to Handle per Fed-Std-141, Meth. 4061	45 minutes at 25°C
Recommended Thinner	Thinner 904, 600
Recommended Stripper	HumiSeal® Stripper 1063
Shelf Life at Room Temperature, DOM	12 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
Flash point	22.5°C *estimated
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 ¹⁴ ohms (200TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	1.6 x 10 ¹⁰ ohms (16GΩ)

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' assembly 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.

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.

Spraying

HumiSeal® 1A33 LOF 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® 1A33 LOF 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® 1A33 LOF 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® 1A33 LOF 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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