

HumiSeal® 1H2OAR3/D Acrylic Conformal Coating Technical Data Sheet

HumiSeal® 1H2OAR3/D is a water-based acrylic conformal coating, suitable for most dip application methods. The coating contains a UV tracer for ease of inspection. HumiSeal® 1H2OAR3/D provides excellent moisture insulation resistance and can be chemically removed or soldered through for rework. HumiSeal® 1H2OAR3/D coating is RoHS Directive EU 2002/95/EC compliant.

Properties of HumiSeal® 1H2OAR3/D

Density, per ASTM D1475	1.05 ± 0.05 g/cm ³
Solids Content, % by weight per Fed-Std-141, Meth. 4044	44 ± 2 %
Viscosity, per Fed-Std-141, Meth. 4287	300 ± 100 centipoise
Recommended Coating Thickness	25 - 75 microns
Drying Time to Handle per Fed-Std-141, Meth. 4061	20 minutes
Recommended Curing Conditions	1 hr @ RT and 6 hrs @ 80°C
Time required to Reach Optimum Properties	7 days
Recommended Stripper	HumiSeal® Stripper 1020
Pot Life at Room Temperature, DOM	6 months in dip tank
Shelf Life at Room Temperature, DOM	12 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Temperature and Humidity Aging per IPC-TM-650 2.6.11	Pass
Flammability, per ASTM D-635	Self-extinguishing
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 volts
Dielectric Breakdown Voltage, per ASTM D149	6925 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	2.3 x 10 ¹³ ohms (23 TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	8.2 x 10 ¹⁰ ohms (82 GΩ)
Fungus Resistance, per ASTM G21	Passes

Application of HumiSeal® 1H2OAR3/D

Cleanliness of the substrate is extremely important to the successful application of a conformal coating. Surfaces should 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.

Waterborne coatings should not be placed directly on bare/untreated steel. Applying waterborne coatings when the Relative Humidity is > 80% will adversely affect coating uniformity and can cause poor adhesion.

When HumiSeal® 1H2OAR3/D is first applied it has a milky white appearance. As the film dries, the white color fades until a clear, transparent film remains. The white color aids the operator's coverage inspection and the color change serves as an indicator that the coating is dry to the touch. It is recommended that the coating be allowed to reach a tack-free condition before using heat to accelerate the cure process.

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Dipping

The material has been formulated for dip application as supplied and requires no thinning. Thinning will reduce the application performance and increase curing time substantially and is not recommended. Because it is a water based coating, evaporation of HumiSeal[®] 1H2OAR3/D from the dip tank is very low. However, over a long period of time, the addition of a small amount of fresh HumiSeal[®] 1H2OAR3/S is beneficial, to replace the low level of coalescing solvents that are lost along with some water. The coalescing solvents are essential to provide optimum film formation and the other physical and electrical properties of the resin.

A slightly slower immersion speed is recommended to reduce the possibility of air entrapment under the components. The withdrawal speed depends on the complexity of the assembly being coated. Although the material has been formulated to lay down 1.5 mils in a single dip application, for densely populated assemblies, reducing the withdrawal speed or applying two successive thinner coatings will give better edge coverage and a better coating appearance.

Storage

HumiSeal[®] 1H2OAR3/D should be stored in its original container in cool, dry conditions. Avoid freezing, since this will compromise performance of the product.

Caution

Application of HumiSeal[®] Conformal Coatings should be carried out in accordance with local and National Health and Safety regulations.

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.

Contact HumiSeal[®]

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