
# HumiSeal® 1122 Urethane Conformal Coating Technical Data Sheet

HumiSeal® 1122 is a heat cured urethane conformal coating offering comparable performance to HumiSeal® solvent based urethanes. HumiSeal® 1122 is a water reducible coating that contains no free isocyanates, is nonflammable and fluoresces under UV light to aid inspection. HumiSeal® 1122 is RoHS Directive 2002/95/EC compliant and recognized under UL File Number E105698.

## Properties of HumiSeal® 1122

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| Density, per ASTM D1475 | 1.05 ± 0.02 g/cm³ |
| Solids Content, % by weight per Fed-Std-141, Meth. 4044 | 33 ± 2 % |
| Viscosity, per Fed-Std-141, Meth. 4287 | 3000 ± 1000 centipoise |
| VOC, per EPA Meth. 454B-98-002 | 412 grams/litre |
| Drying Time to Handle per Fed-Std-141, Meth. 4061 | 6 hrs. @ RT |
| Recommended Coating Thickness | 25 - 75 microns |
| Recommended Curing Conditions | 30 min @ 76°C |
| Time Required to Reach Optimum Properties | 7 days @ RT |
| Recommended Thinner | Deionized Water |
| Recommended Stripper | HumiSeal® Stripper 1063 |
| Shelf Life at Room Temperature, DOM | 18 months |
| Thermal Shock, 50 cycles per MIL-I-46058C | -65°C to 125°C |
| Flammability, per UL94 | V-0 |
| Dielectric Withstand Voltage, per MIL-I-46058C | >1500 volts |
| Dielectric Breakdown Voltage, per ASTM D149 | 3200 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 | 0.030 |
| Insulation Resistance, per MIL-I-46058C | $2.5 \times 10^{14}$ ohms (250TΩ) |
| Moisture Resistance, per MIL-I-46058C | $1.0 \times 10^{10}$ ohms (10GΩ) |
| Fungus Resistance, per ASTM G21 | Passes |

## Application of HumiSeal® 1122

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.

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.

### Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal® 1122 with deionized water in order to obtain a uniform film. Once optimum viscosity is determined, a controlled rate of immersion (30 cm/min) and withdrawal (10 cm/min) will ensure uniform deposition of the coating. During the application, evaporation will cause an increase in viscosity. Viscosity in the dip tank should be checked regularly, using simple measuring device such as a Zahn or Ford viscosity cup. The viscosity should be adjusted by adding small amounts of deionized water. Various conditions, such as ambient humidity and temperature, will affect the viscosity and drying times of the coating. Conditions in the manufacturing environment should be kept as stable as possible.

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## Spraying

HumiSeal® 1122 can be sprayed using conventional spraying equipment. The addition of deionized water is necessary to ensure a uniform spray pattern resulting in pinhole free film. The amount of deionized water and spray pressure will depend on the specific type of spray equipment being used. It is recommended that the operator adjust the viscosity, beginning with an addition of deionized water at approximately 3% to 5% by volume. It is not uncommon to use atomizing pressures as high as 90 psi to obtain a uniform film. Do not flood the board. Optimum coverage is achieved by spraying in four layers, rotating the board 90° between each complete pass. Excessive thinning of HumiSeal® 1122 should be avoided. It will negatively impact coating quality and performance.

## Brushing

HumiSeal® 1122 may be brushed after thinning with deionized water. The uniformity of the finished coating will depend on component density, coating viscosity and operator's technique.

## Curing

After application, allow the coating to dry to a tack free state. This should take approximately 20 min @ 25°C. Once the coating has reached a tack-free state, an oven curing cycle is recommended. Actual time to cure will be affected by various conditions such as coating thickness, ambient humidity and ambient temperature.

## Storage

HumiSeal® 1122 should be stored at room temperature in tightly closed containers. The coating contains water and care should be taken to prevent it from freezing. Containers of frozen HumiSeal® 1122 must be brought back to room temperature, stabilized overnight and thoroughly stirred prior to use.

## 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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