

HumiSeal® AR10 LowOutgas

Acrylic Conformal Coating

Technical Data Sheet

HumiSeal® AR10 LowOutgas Conformal Coating is a low outgassing, non-toxic, flexible and transparent acrylic coating developed for protection of printed circuit assemblies.

HumiSeal® AR10 LowOutgas has the following advantages:

- Passes NASA ASTM E595 specifications ensuring its viability for use in critical space and high vacuum environments
- Fluoresces under UV light to allow for coating inspection and can be applied by all selective coating equipment.
- Meets the IPC-CC-830
- Meets the IPC- MIL-I-46058C compliant
- In compliance with current REACH and RoHS regulations

Properties of HumiSeal® AR10 LowOutgas Liquid Coating

Chemical Class	Acrylic
Color	Pale Liquid
Minimum Solids Content	30 %
Specific Gravity @ 20 °C	0.93
Viscosity @ 20°C	245-300 cps
Shelf Life at Room Temperature, DOM	18 Months

Properties of HumiSeal® AR10 LowOutgas Cured Coating

Coating Thickness, as recommended by IPC guidelines	25 - 125 microns
Coating Thickness, as recommended for application	75 - 130 microns
Outgassing, NASA ASTM E595	PASSES
Thermal Shock, IPC-CC-830, IEC 60068-2-14	-65°C +125°C, 100 cycles, -40°C +105°C, 1500 cycles
Glass Transition Temperature (Tg)	29°C
Coefficient of Thermal Expansion - TMA	130 ppm/°C Below Tg 280 ppm/°C Above Tg
Dielectric Strength	50 kV/mm
Dielectric withstanding voltage, MIL-I-46058C	> 1500V
Dissipation Factor, 1MHz, 25°C:	0.01
Temperature Range:	-65°C to +150°C
Flammability	UL94V0
CTI, DIN EN 60112 on FR4	>600
SIR Test, IPC-CC-830	20°C-65°C, 95%RH, 7days
Damp Heat Test, IEC 60068-2-67	85°C, 85%RH, 1000h
Salt Mist Test,(IEC 60068-2-11	35°C, 5% salt, 48h
VRT	-55°C +125°C, 20 cycles, 10°C/mn

Application of HumiSeal® AR10 LowOutgas

Conformal coatings can be successfully applied to substrates that have been cleaned prior to coating and to substrates assembled with low residue “no clean” 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

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal® AR10 LowOutgas with a thinner in order to obtain a uniform film. Once optimum viscosity is determined, 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® AR10 LowOutgas can be sprayed using standard selective coating equipment or by conventional hand spraying equipment. Spraying should be done in an environment with adequate ventilation so that the vapour and mist are carried away from the operator. HumiSeal® AR10 LowOutgas can be thinned before spraying and may be necessary to ensure a uniform spray pattern resulting in a pinhole-free film. The amount of thinner and spray pressure will depend on the specific type of spray equipment used and operator technique, but a 1:1 by volume ratio of thinner to coating is recommended as a starting point. If bulk coating material has been agitated, allow to stand until air bubbles have dispersed.

Brushing

HumiSeal® AR10 LowOutgas may be brushed with a small addition of thinner. Uniformity of the film depends on component density and operator's technique. Ensure that the coating material has been agitated thoroughly and has been allowed to settle for at least 2 hours.

Drying Times and Curing Conditions

Coating will be touch dry 15-20 minutes post application at room temperature. Thermal cure is not required and full properties will be obtained after 24 hours. Immediate adhesion can be accelerated via thermal cure for 2 hours at 50 °C but solvents must be allowed 15-30 min to evaporate prior to heating.

Storage

Keep stored between 5°C and 30°C in tightly closed, light-blocking containers away from direct sunlight. Keep from freezing. Please refer to product labeling for shelf-life information. Consult SDS for safe handling recommendations.

Caution

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

The solvents in HumiSeal® 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 MSDS/SDS prior to use

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