CHASE Electronic Coatings

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HumiSeal®

HumiSeal® 1R32 Acrylic Conformal Coating Technical Data Sheet

HumiSeal® 1R32 is a fast drying, single component acrylic conformal coating that provides excellent moisture and environmental protection for printed circuit assemblies. HumiSeal® 1R32 fluoresces under UV light for ease of inspection and is easily repaired. HumiSeal® 1R32 is in full compliance with the RoHS Directive 2002/95/EC.

Properties of HumiSeal® 1R32

Density, per ASTM D1475	0.91 ± 0.02 g/cm³
Solids Content, % by weight per Fed-Std-141, Meth. 4044	35 ± 2 %
Viscosity, per Fed-Std-141, Meth. 4287	220 ± 30 centipoise
VOC	600 grams/litre
Drying Time to Handle per Fed-Std-141, Meth. 4061	10 minutes
Recommended Coating Thickness	25 - 75 microns
Recommended Curing Conditions	24 hrs @ RT or 30 min @ 76°C
Time Required to Reach Optimum Properties	7 days
Recommended Thinner (dipping & brushing)	HumiSeal® Thinner 505
Recommended Thinner (spraying)	HumiSeal® Thinner 521
Recommended Stripper	HumiSeal® Stripper 1080
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	170 ppm/°C below T_g 340 ppm/°C above T_g
Glass Transition Temperature - DSC	14°C
Modulus - DMA	2000 MPa @ -40°C 1050 MPa @ 20°C 8.5 MPa @ 60°C
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	2.5
Dissipation Factor, at 1MHz and 25°C, per ASTM D150-98	0.01
Insulation Resistance, per MIL-I-46058C	8.0×10^{14} ohms (800TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	6.0×10^{10} ohms (60GΩ)
Fungus Resistance, per ASTM G21	Passes

Application of HumiSeal® 1R32

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.

Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal® 1R32 with HumiSeal® Thinner 505 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 HumiSeal® Thinner 505. 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® 1R32 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 addition of HumiSeal® Thinner 521 is necessary to ensure a uniform spray pattern resulting in pinhole-free film. The amount of thinner and spray pressure will depend on the specific type of spray equipment used and operator technique. The recommended ratio of HumiSeal® 1R32 to HumiSeal® Thinner 521 is 1:1 by volume; however the ratio may need to be adjusted to obtain a uniform coating.

Brushing

HumiSeal® 1R32 may be brushed with a small addition of HumiSeal® Thinner 505. Uniformity of the film depends on component density and operator's technique.

Storage

HumiSeal® 1R32 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® 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.

Contact HumiSeal®

HumiSeal North America
201 Zeta Drive
Pittsburgh, PA 15238
USA
Tel: +1 412-828-1500
Toll Free (US only): 866-828-5470
sales@humiseal.com

HumiSeal Technical Center
295 University Avenue
Westwood, MA 02090
USA
Tel: +1 781-332-0734
Fax: +1 781-332-0703
techsupport@humiseal.com

HumiSeal Europe
505 Eskdale Road, IQ Winnersh
Berkshire RG41 5TU
UK
Tel: +44 (0)1189 442 333
Fax: +44 (0)1189 335 799
europeansales@chasecorp.com

HumiSeal Europe Support
Tel: +44 (0)1189 442 333
Fax: +44 (0)1189 335 799
europetechsupport@chasecorp.com

HumiSeal S.A.R.L
4/6 Avenue Eiffel
78420 Carrieres-Sur-Seine
France
Tel: +33 (0) 1 30 09 86 86
Fax: +33 (0) 1 30 09 86 87
humiseal.sarl@chasecorp.com

HumiSeal Asian Support
Tel: 852-9451-6434
Fax: 852-2413-6289
asiatechsupport@humiseal.com

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