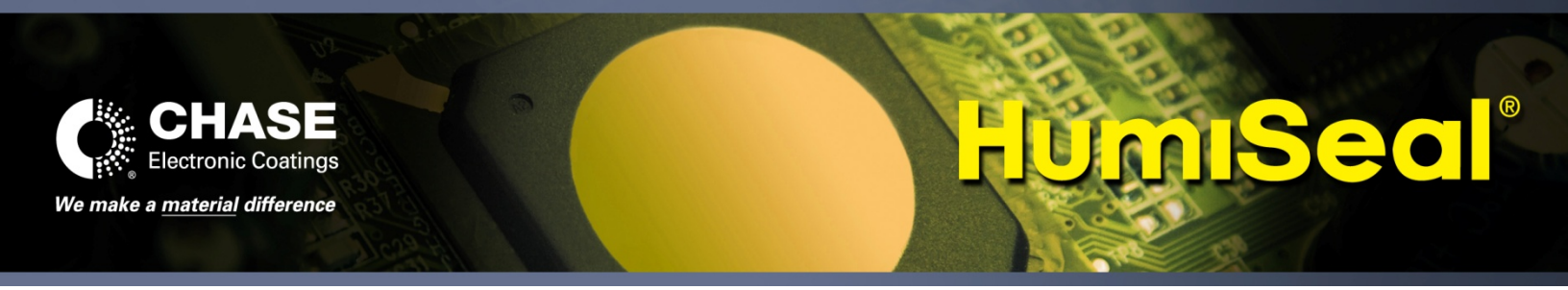

HumiSeal® UV40-250 UV Curable Conformal Coating Technical Data Sheet

HumiSeal® UV40-250 is a single component, high solids, UV curable, acrylated polyurethane conformal coating that possesses excellent chemical resistance, surface hardness, flexibility and moisture resistance. The material is tack-free after exposure to UV light. A secondary moisture cure mechanism will cure unexposed areas of the coating within 2-3 days at ambient conditions. The coating fluoresces under UV light to allow for coating inspection and can be applied by all selective coating equipment. HumiSeal® UV40-250 is recognized under UL File Number E105698 and is IPC-CC-830 and RoHS Directive 2011/65/EC compliant.

Typical Properties of HumiSeal® UV40-250

Density	1.06 g/cm^3
Minimum Solids Content	95 %
Viscosity, per Fed-Std-141, Meth. 4287	300 ± 50 centipoise
Recommended Coating Thickness	25 - 125 microns
Recommended UV Cure*	See curing section below
Shelf Life at Room Temperature, DOM	6 months
Recommended Stripper**	HumiSeal® Stripper 1100
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Glass Transition Temperature - DSC	26°C
Coefficient of Thermal Expansion	112 ppm/°C Below T_g 283 ppm/°C Above T_g
Modulus - DMA	1060 MPa -60°C
Dielectric Withstand Voltage, volts per MIL-I-46058C	>1500
Dielectric Constant, at 1MHz and 25°C per ASTM D150-98	2.41
Dissipation Factor, at 1MHz and 25°C per ASTM D150-98	0.01
Insulation Resistance, per MIL-I-46058C	8.0 x 10^{14} ohms (800TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	4.7 x 10^{10} ohms (47GΩ)
Fungus Resistance, per ASTM G21	Pass
Resistance to Chemicals	Excellent

*Microwave UV cure ovens equipped with “H” style bulbs recommended
**Stripper 1100 is not available in the EU

Application of HumiSeal® UV40-250

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.

Spraying

HumiSeal® UV40-250 can be applied via standard selective coating. The source air used for spraying must be dry (a dry inert gas is highly recommended) to prevent premature curing by the secondary cure mechanism. The spraying should be done with adequate ventilation so that the vapour and mist are carried away from the operator.

HumiSeal® UV40-250 Technical Data Sheet

Curing

HumiSeal® UV40-250 is a highly cross linked coating. In order to achieve maximum cross linking density, the product must be exposed to the correct spectral output. Humiseal® has modelled the performance of UV40-250 using Arc and Microwave based UV curing equipment. The table below outlines the required dosage and irradiance values necessary to render HumiSeal® UV40-250 tack free post UV exposure with both equipment types. Minimum figures should provide a tack free surface. The maximum recommendation represents highest tested values by Humiseal. The cure recommendations may change as curing technology develops.

		Dose J/cm2*			Irradiance W/cm2*		
		UVA	UVB	UVC	UVA	UVB	UVC
Min	Arc System	1.5	1.5	0.40	0.50	0.50	0.10
Min	Microwave System	2.0	2.0	0.40	0.70	0.70	0.15
Max	Arc System	2.8	2.7	0.80	0.90	0.80	0.20
Max	Microwave System	3.0	3.0	0.60	1.15	1.15	0.24

**Values measured with a Powerpuck II UV radiometer*

Heat is also an important component with UV cure, and different systems produce different heat outputs. Higher heat levels allow UV cure at lower dose/irradiance levels. Consequently, Humiseal recommend that curing is discussed with HumiSeal® Technical staff to ensure the exact customer process being used will meet the coating cure requirements. After UV exposure and return to room temperature the coating should be tack free.

HumiSeal® UV40-250 contains a reliable secondary moisture cure mechanism which will cure any shadow areas on the assembly within 7 days at ambient moisture.

HumiSeal® UV40-250 was designed to be cured using a microwave UV oven equipped with an “H” style bulb. Arc systems can cure HumiSeal® UV40-250 however care must be taken during the equipment selection process to ensure minimum dosage and irradiance values obtained will properly cure the coating. Because of the variations possible in curing equipment type and configuration, it is strongly recommended that you contact HumiSeal Technical Support to discuss your equipment and process in detail.

Clean Up

To flush equipment and clean uncured HumiSeal® UV40-250, non-alcohol based solvents should be used. HumiSeal® Thinner 521 or Thinner 521EU is recommended.

Rework

HumiSeal® UV40-250 is a highly cross linked UV cured coating. The cured film has a high degree of environmental and chemical resistance and will be more difficult to remove than traditional conformal coatings. Thermal displacement, mechanical abrasion and, where available, HumiSeal® Stripper 1100 are suitable options for rework of HumiSeal® UV40-250.

Storage

HumiSeal® UV40-250 is photosensitive; the product should not be exposed to direct sunlight or full spectrum fluorescent lighting. HumiSeal® UV40-250 should be stored away from excessive heat, in tightly closed opaque containers at 0 to 25°C to ensure maximum shelf life is achieved. Prior to use, allow the product to equilibrate for 24 hours at room temperature. HumiSeal® UV40-250 is a moisture curing material and care should be taken to protect process vessels and partial containers from moisture. Partial containers must be purged with a dry, inert gas such as dry air, nitrogen or argon before closure, otherwise premature polymerization by atmospheric moisture will occur.

HumiSeal® UV40-250 Technical Data Sheet

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®

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