

# HumiSeal<sup>®</sup> UV50

## UV Curable Conformal Coating

### Technical Data Sheet

HumiSeal UV50 is a one-part, high solids dual-cure acrylated polyurethane conformal coating which has been specifically developed to:

- Cure tack free with Microwave or Arc UV light
- Have a viscosity suitable for use with selective coating equipment.
- Have secondary cure mechanism that will fully cure any unexposed areas of the coating within 7 days at ambient conditions\*
- Fluoresce under UV light to allow coating inspection and can be applied by all selective coating equipment.
- Have a higher flexibility compared to other UV curable conformal coatings, giving improved adhesion and performance in thermal cycling tests.
- Have excellent chemical and moisture resistance.

\*At higher temperature or humidity levels, this time may be reduced.

UV50 is non-flammable, contains no VOCs or solvent, and is RoHS Directive 2015/863 compliant.

#### Typical Properties of HumiSeal<sup>®</sup> UV50

Density	1.0 to 1.1 g/cm <sup>3</sup>
Minimum Solids Content	95 %
Viscosity, per Fed-Std-141, Meth. 4287	300 to 450 centipoise
Recommended Coating Thickness	25 to 130 microns
Shelf Life at Room Temperature, from DOM	12 months
Recommended UV Cure	See curing section below
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Shore Hardness A / D	88 / 34
Flammability, per UL-94	V-0
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 V
Surface Insulation Resistance, per IPC-J-STD-004 (mod.)	8.9 log <sub>10</sub> Ohms
Moisture Insulation Resistance, per IPC-CC830	8.9 log <sub>10</sub> Ohms
Moisture Resistance, per MIL-I-46058C	Pass
Resistance to Chemicals	Excellent
Resistance to Bleach Vapors	Excellent

#### Application of HumiSeal<sup>®</sup> UV50

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

HumiSeal<sup>®</sup> UV50 is specifically formulated for immediate use. No additional dilution is required.

### Spraying

HumiSeal<sup>®</sup> UV50 can be applied via standard selective coating equipment or by conventional hand spray equipment. The source air used for spraying must be dry (a dry inert gas is highly recommended) to prevent premature curing of the secondary cure mechanism. The spraying should be done with adequate ventilation so that the vapor and mist are carried away from the operator.

### Brushing

HumiSeal<sup>®</sup> UV50 may be applied by brush for rework or touch up only. Brush must be cleaned with solvent promptly after use.

### Clean Up

To flush equipment and clean uncured HumiSeal<sup>®</sup> UV50, nonalcohol-based solvents should be used. HumiSeal<sup>®</sup> Thinner 521/Thinner 521EU is recommended.

### Curing

HumiSeal<sup>®</sup> UV50 is a highly cross-linked coating. In order to achieve maximum cross-linking density, the product must be exposed to the correct spectral output. Conveyor speed and lamp height have an influence on coating cure level. Users should perform adequate testing to ensure appropriate cure with their selected equipment set. HumiSeal has modelled the performance of UV50 using Arc and Microwave based UV curing equipment. The table below outlines the required dosage and irradiance values necessary to render HumiSeal<sup>®</sup> UV50 tack free post UV exposure with both equipment types. 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\*

### Rework

HumiSeal<sup>®</sup> UV50 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 and mechanical abrasion are suitable options for rework of HumiSeal<sup>®</sup> UV50.

### Storage

HumiSeal<sup>®</sup> UV50 is photosensitive. The product should not be exposed to direct sunlight or full spectrum fluorescent lighting. HumiSeal<sup>®</sup> UV50 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<sup>®</sup> UV50 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.

### Caution

Application of HumiSeal<sup>®</sup> 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.**



# HumiSeal®

## 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](mailto: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](mailto: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  
[europesales@chasecorp.com](mailto:europesales@chasecorp.com)

### HumiSeal India

J-154, M.I.D.C Bhosari  
Pune 411 026  
Maharashtra  
India  
Tel: +91 20 66308098  
[indiatechsupport@chasecorp.com](mailto:indiatechsupport@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](mailto:humiseal.sarl@chasecorp.com)

### HumiSeal Asian Support

Tel: 852-9451-6434  
Fax: 852-2413-6289  
[asiatechsupport@humiseal.com](mailto:asiatechsupport@humiseal.com)

### HumiSeal Europe Support

Tel: +44 (0)1189 442 333  
Fax: +44 (0)1189 335 799  
[europetechsupport@chasecorp.com](mailto:europetechsupport@chasecorp.com)

The information contained here is provided for product selection purposes only and is not to be considered specification or performance data. Under no circumstance will the seller be liable for any loss, damage, expense or incidental or consequential damage of any kind arising in connection with the use or inability to use its product. Specific conditions of sale and Chase's limited warranty are set out in detail in Chase Corporation Terms and Conditions of Sale. Those Terms and Conditions are the only source that contain Chase's limited warranty and other terms and conditions.