

# HumiSeal<sup>®</sup> UV40 UV Curable Conformal Coating

## Technical Data Sheet

HumiSeal<sup>®</sup> UV40 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 selective coating equipment. HumiSeal<sup>®</sup> UV40 coating is recognized under UL File Number E105698, and is MIL-I-46058C qualified, and IPC-CC-830 and RoHS Directive 2002/95/EC compliant.

### Typical Properties of HumiSeal<sup>®</sup> UV40

Density	1.06 g/cm <sup>3</sup>
Minimum Solids Content	95 %
Viscosity, per Fed-Std-141, Meth. 4287	650 ± 150 centipoise
Recommended Coating Thickness	25 - 125 microns
Recommended UV Dose*	1 - 5 J/cm <sup>2</sup>
Shelf Life at Room Temperature, DOM	12 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Glass Transition Temperature - DSC	45°C
Coefficient of Thermal Expansion - TMA	85 ppm/°C Below T <sub>g</sub> 197 ppm/°C Above T <sub>g</sub>
Modulus - DMA	10364 MPa @ -40°C 4283 MPa @ 25°C 66 MPa @ 80°C
Flammability, per UL-94	V-0
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 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 x 10 <sup>14</sup> ohms (800TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	4.7 x 10 <sup>10</sup> ohms (47GΩ)
Fungus Resistance, per ASTM G21	Pass
Resistance to Chemicals	Excellent

\*Fusion "H" style bulb recommended

### Application of HumiSeal<sup>®</sup> UV40

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.

#### Spraying

HumiSeal<sup>®</sup> UV40 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 vapour and mist are carried away from the operator.

#### Brushing

HumiSeal<sup>®</sup> UV40 may be applied by brush for rework or touch up only. Brush must be cleaned with solvent promptly after use.

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### Clean Up

To flush equipment and clean uncured HumiSeal<sup>®</sup> UV40, non-alcohol based solvents should be used. HumiSeal<sup>®</sup> Thinner 600 is recommended.

### Rework

HumiSeal<sup>®</sup> UV40 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> UV40.

### Storage

HumiSeal<sup>®</sup> UV40 is photosensitive. The product should not be exposed to direct sunlight or full spectrum fluorescent lighting. HumiSeal<sup>®</sup> UV40 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> UV40 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.

## Contact HumiSeal<sup>®</sup>

### 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 Europe Support

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

### HumiSeal Asian Support

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

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