

## HumiSeal® 1B31S Acrylic Conformal Coating Technical Data Sheet

HumiSeal® 1B31S is a fast drying, single component, acrylic conformal coating that provides improved adhesion, excellent moisture and environmental protection for printed circuit assemblies. HumiSeal® 1B31S demonstrates outstanding flexibility, fluoresces under UV light for ease of inspection and is easily repaired. HumiSeal® 1B31S coating is MIL-I-46058C qualified, IPC-CC-830 and RoHS Directive 2002/95/EC compliant.

### Properties of HumiSeal® 1B31S

|                                                         |                                                                    |
|---------------------------------------------------------|--------------------------------------------------------------------|
| Density, per ASTM D1475                                 | 0.91 ± 0.02 g/cm <sup>3</sup>                                      |
| Solids Content, % by weight per Fed-Std-141, Meth. 4044 | 35 ± 3 %                                                           |
| Viscosity, per Fed-Std-141, Meth. 4287                  | 200 ± 15 centipoise                                                |
| VOC                                                     | 592 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 503                                              |
| 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 <sub>g</sub><br>340 ppm/°C above T <sub>g</sub> |
| Glass Transition Temperature - DSC                      | 14°C                                                               |
| Modulus - DMA                                           | 2000 MPa @ -40°C<br>1050 MPa @ 20°C<br>8.5 MPa @ 60°C              |
| Flammability, per MIL-I-46058C                          | Self-Extinguishing                                                 |
| 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 x 10 <sup>14</sup> ohms (800TΩ)                                |
| Moisture Insulation Resistance, per MIL-I-46058C        | 6.0 x 10 <sup>10</sup> ohms (60GΩ)                                 |
| Fungus Resistance, per ASTM G21                         | Passes                                                             |

### Application of HumiSeal® 1B31S

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® 1B31S with HumiSeal® Thinner 503 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 503. Viscosity in the dip tank should be checked regularly, using a simple measuring device such as a Zahn or Ford viscosity cup.

## HumiSeal® 1B31S Technical Data Sheet

### Spraying

HumiSeal® 1B31S 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® 1B31S to HumiSeal® Thinner 521 is 1:1 by volume; however the ratio may need to be adjusted to obtain a uniform coating.

### Brushing

HumiSeal® 1B31S may be brushed with a small addition of HumiSeal® Thinner 503. Uniformity of the film depends on component density and operator's technique.

### Storage

HumiSeal® 1B31S 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](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 Carrières-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)

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.