



## HumiSeal 1C51 Silicone Conformal Coating Technical Data Sheet

HumiSeal 1C51™ is a one part, 100% solids, fast thermal curing Silicone coating. The low viscosity and long pot life of HumiSeal 1C51™ makes it ideal for dipping and spraying. At 100% solids, HumiSeal 1C51™ is VOC-free and the final film demonstrates excellent flexibility and is easily repairable and contains an optical brightener for inspection under black light. HumiSeal 1C51™ coating is MIL-I-46058C and IPC-CC-830 qualified and recognized under the components program at Underwriter's Laboratory; File No. E105698 and is in full compliance with the RoHS Directive (EU Directive 2002/95/EC).

### Properties of Liquid HumiSeal 1C51™

|  |   |
|--|---|
| Specific weight, ( lb. per gal.) per ASTM, Meth. D1475 | 8.3 ± .1  |
| Solids Content, % by weight per Fed-Std-141, Meth.4044 | 100   |
| Viscosity, centipoise per Fed-Std--141, Meth. 4287     | 590 ± 100   |
| Flashpoint, °C (°F) per ASTM, Meth. D56                | 121°C (250° F)  |
| VOC (grams / liter)                                    | 0   |
| Recommended Coating Thickness                          | 2 - 8 mils  |
| Recommended Curing Conditions                          | 10 - 15 min. @ 105 - 130° C (221 - 266° F)  |
| Time Required to Reach Optimum Properties              | 15 min.   |
| Recommended Stripper                                   | Stripper 1090   |
| Pot Life at Room Temperature                           | >30 Days  |
| Shelf Life at Room Temperature                         | 12 months from date of shipment if stored in the original unopened container at temperatures of 80° F or below. |

### Properties of Cured HumiSeal 1C51™

#### Thermal Properties

|  |  |
|--|--|
| Continuous Use Operating Range °C(°F)  | -65° C (-85° F) to +200° C (390° F)                |
| Thermal Shock, per MIL-I-46058C        | Passes   |
| Solderability                          | Fair   |
| Glass Transition Temperature – DMA     | < -65° C   |
| Coefficient of Thermal Expansion - TMA | 296 ppm / °C                                       |
| Storage Modulus – DMA                  | 46 MPa @ -40°C<br>3.9 MPa @ 25°C<br>3.3 MPa @ 80°C |

#### Physical Properties

|  |                    |
|--|--------------------|
| Clarity                                  | Clear              |
| Build per Dip, mils, per ASTM, Meth.D823 | 3                  |
| Flexibility, per MIL-I-46058C            | Excellent          |
| Adhesion, per ASTM, Meth. D2197          | Excellent          |
| Flammability, per ASTM, Meth. D635       | Self-Extinguishing |
| Weather Resistance                       | Excellent          |

#### Electrical Properties

|  |                               |
|--|-------------------------------|
| Dielectric Withstand Voltage, volts per MIL-I-46058C     | >1,500                        |
| Dielectric Breakdown Voltage, volts/mil, per ASTM D-149  | 7000                          |
| Dielectric Constant, at 1MHz and 25°C, per ASTM-D150-65T | 2.4                           |
| Dissipation Factor, at 1MHz and 25°C, per ASTM-D150-65T  | 0.01                          |
| Insulation Resistance, ohms, per MIL-I-46058C            | 500 x 10 <sup>12</sup> (500T) |
| Moisture Resistance, ohms, per MIL-I-46058C              | 100 x 10 <sup>9</sup> (100G)  |



**HumiSeal**<sup>®</sup>  
Chase Electronic Coatings

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### Chemical Properties

|                                 |           |
|---------------------------------|-----------|
| Main Constituent                | Silicone  |
| Fungus Resistance, per ASTM-G21 | Passes    |
| Resistance to Chemicals         | Excellent |

Values are not intended for use in preparation of specifications.

### APPLICATION

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 and all other contaminants. Contamination under the coating will cause problems which may lead to assembly failures.

**HumiSeal 1C51™ may be applied by brush, dip or spray. Thinning is not required.**

#### Dipping

A controlled rate of immersion and withdrawal (2" to 6" per minute) will insure even deposition of the coating and ultimately a uniform film.

#### Spraying

HumiSeal 1C51™ can be sprayed using conventional spraying equipment. Spray pressure will depend on the specific type of spraying equipment used. The spraying should be done under an exhaust hood so that the mist is carried away from the operator. The use of thinner is not required for HumiSeal 1C51™.

#### Brushing

HumiSeal 1C51™ may be brushed. Uniformity of the film depends on component density and operator's technique.

#### Storage

HumiSeal 1C51™ should be stored at 80°F or below, away from excessive heat, in tightly closed containers. Storage of Humiseal 1C51™ under refrigeration will extend its shelf life. Avoid direct sunlight. Prior to use, allow the product to equilibrate for 24 hours at room temperature.

#### Curing

HumiSeal 1C51™ is a thermally cured conformal coating. The actual curing temperature of Humiseal 1C51™ is dependent upon several parameters such as heat sink characteristics of parts being coated, the type of oven used for curing process, as well as oven loading parameters.

#### NOTE:

Thermal curable silicones may be cure inhibited by a variety of materials i.e.; amines, acrylates, certain ingredients from latex rubber etc. It is recommended that process and materials compatibility be considered when incorporating HumiSeal 1C51™ into the production environment. Cotton gloves are recommended for operators that will be handling assemblies prior to coating with HumiSeal 1C51™.

#### Caution

Avoid inhalation of spray, use only in well-ventilated areas. Avoid contact with skin and eyes. If contact occurs, wash with soap and water. If swallowed, call physician immediately. Refer to MSDS before use.

All technical data in this bulletin is based on test results and is believed to be correct. However, since the end use of HumiSeal materials (and the manner of storing and handling them) is beyond our control, we make no warranty-expressed or implied as to the fitness of use, results to be obtained from or effects of use with respect to these materials. Their use shall be solely by the judgment of and at the risk of the user notwithstanding any statement in this bulletin. © Copyright 1992 CHASE CORPORATION.

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