

# HumiSeal 1C55™ Silicone Conformal Coating

## Technical Data Sheet

HumiSeal 1C55™ is a single component, VOC-free, low viscosity, fast thermal curing silicone conformal coating. The low viscosity and long pot life of HumiSeal 1C55™ make it ideal for dipping and spraying. HumiSeal 1C55™ demonstrates excellent flexibility, contains an optical brightener for inspection under black light and is repairable. HumiSeal 1C55™ coating is RoHS Directive 2002/95/EC compliant.

### Properties of HumiSeal 1C55™

Density, g/cm <sup>3</sup> per ASTM, Meth. D1475	0.98 ± .02
Solids Content, % by weight per Fed-Std-141, Meth. 4044	99 min
Viscosity, centipoise per Fed-Std-141, Meth. 4287	245 ± 55
VOC, grams/litre	0
Recommended Coating Thickness, microns	50 - 200
Recommended Curing Conditions	10 - 15 min @ 105 - 130°C
Time Required to Reach Optimum Properties	15 min
Recommended Stripper	HumiSeal Stripper 1090
Shelf Life at Recommended Conditions, DOM	12 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 200°C
Glass Transition Temperature - DSC	< -65°C
Coefficient of Thermal Expansion - TMA	154 ppm/°C
Modulus - DMA	0.7 MPa @ -40°C
	0.6 MPa @ 25°C
	0.5 MPa @ 80°C
Tensile	0.15 MPa
Elongation	16%
Flammability, per UL 94	HB
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 Insulation Resistance, ohms per MIL-I-46058C	100 x 10 <sup>9</sup> (100G)
Fungus Resistance, per ASTM-G21	Passes

### Application of HumiSeal 1C55™

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 which may lead to assembly failures.

#### Dipping

A controlled rate of immersion and withdrawal (5-15 cm/min) will ensure even deposition of the coating and ultimately a uniform film.

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### Spraying

HumiSeal 1C55™ can be sprayed using conventional spraying equipment. Spray pressure will depend on the specific type of spraying equipment used and operator technique. Spraying should be done in an environment with adequate ventilation so that the vapour and mist are carried away from the operator. The use of thinner is not required or recommended for HumiSeal 1C55™.

### Brushing

HumiSeal 1C55™ may be brushed. Uniformity of the film depends on component density and operator's technique.

### Curing

HumiSeal 1C55™ is a thermally cured conformal coating. The actual curing temperature of HumiSeal 1C55™ 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.

The cure mechanism for HumiSeal 1C55™ may be inhibited by a variety of materials such as amines, acrylates, certain ingredients from latex rubber, etc. It is recommended that process and material compatibility be considered when incorporating HumiSeal 1C55™ into the production environment. Cotton gloves are recommended for operators who will be handling assemblies prior to coating with HumiSeal 1C55™.

### Storage

HumiSeal 1C55™ should be stored at 27°C or below in tightly closed containers away from direct sunlight. Refrigerated storage of HumiSeal 1C55™ will extend its shelf life. Prior to use, allow the product to equilibrate for 24 hours at room temperature.

### Caution

Use only in well-ventilated areas to avoid inhalation of vapours or spray. Avoid contact with skin and eyes. Consult MSDS prior to use.

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