

HumiSeal® 1C49 Silicone Conformal Coating **Technical Data Sheet**

HumiSeal® 1C49 is a moisture curing, high build, VOC-free silicone conformal coating which provides excellent moisture and environmental protection for printed circuit assemblies. HumiSeal® 1C49 is solvent free. The coating demonstrates outstanding flexibility, fluoresces under UV light for ease of inspection and can be repaired. HumiSeal® 1C49 can be cured at room or at elevated temperatures. HumiSeal® 1C49 is MIL-I-46058C qualified, IPC-CC-830 and RoHS Directive 2011/65/EU compliant, and recognized under UL File Number E105698.

Properties of HumiSeal® 1C49

Density, per ASTM D1475 Min Solids Content, % by weight per Fed-Std-141, Meth. 4044 Viscosity, per Fed-Std-141, Meth. 4287 VOC Recommended Coating Thickness Drying Time to Handle per Fed-Std-141, Meth. 4061 **Recommended Curing Conditions** Time required to Reach Optimum Properties Recommended Stripper Shelf Life at Room Temperature, DOM Thermal Shock, 50 cycles per MIL-I-46058C Coefficient of Thermal Expansion - TMA

Tensile per ASTM D-412 Elongation per ASTM D-412 Build per Dip, per ASTM D823 Flammability, per UL94 Dielectric Withstand Voltage, per MIL-I-46058C Dielectric Breakdown Voltage, per ASTM D149 Dielectric Constant, at 1MHz and 25°C per ASTM D150-98 Dissipation Factor, at 1MHz and 25°C per ASTM D150-98 Insulation Resistance, per MIL-I-46058C Moisture Insulation Resistance, per MIL-I-46058C Fungus Resistance, per ASTM G21

Glass Transition Temperature - DSC < -65°C Storage Modulus - DMA 408 MPa @ -40°C 1.6 MPa @ 25°C 1.4 MPa @ 80°C 30-50 psi 80-120 % 5 mils V-1 >1500 volts 7000 volts 2.5

> $5.0 \times 10^{14} \text{ ohms } (500 \text{T}\Omega)$ $1.0 \times 10^{10} \text{ ohms } (10 \text{G}\Omega)$

0.97 ± 0.03 g/cm³

50 - 200 microns

0 grams/litre

3 - 5 hours

12 months

-65°C to 200°C

367 ppm /°C

9000 ± 1500 centipoise

HumiSeal® Stripper 1091

24 hrs @ RT or 20 min @ 76°C*

95 %

Passes

0.01

Application of HumiSeal® 1C49

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" 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.

Uniformity of the film depends on component density and operator's technique.

14617 Page 1 of 2

^{*}Place an open pan of water in the oven during curing



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Dipping

A controlled rate of immersion and withdrawal (5-15 cm/min) will ensure even deposition of the coating and ultimately a uniform film. Blanketing dip tanks with an inert gas such as nitrogen can extend pot life.

Spraying

HumiSeal® 1C49 may be applied using spraying equipment designed for high viscosity coatings. Attempting to apply the material using conventional spray equipment may result in bubbles in the cured HumiSeal® 1C49 coating. When in doubt, test the ability of the spray equipment before applying coating to production boards. 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® 1C49.

HumiSeal® 1C49 should be stored at 27°C or below in tightly closed containers away from direct sunlight. If coating is partially used, the container should be purged with dry nitrogen prior to resealing. Prior to use, allow the product to equilibrate for 24 hours at room temperature.

Caution

Application of HumiSeal® 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 SDS prior to use.

Contact HumiSeal®

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14617 Page 2 of 2