

TECHNICAL DATA SHEET

System Description

A moisture curing, high build, 100% solids single component silicone coating providing excellent moisture and environmental protection for printed circuit assemblies. Solvent free, 1C49 has no significant VOC. The final film demonstrates excellent flexibility and is repairable. This coating is MIL-I-46058C and IPC-CC-830 qualified. Fluoresces under UV light for ease of inspection. The coating can be cured at room temperature, or elevated temperature with a pan of water. UL recognized under the components program at Underwriter's Laboratory; File No. E105698. HumiSeal 1C49 is in full compliance with the RoHS Directive (Directive 2002/95/EC).

Properties of Liquid HumiSeal

Specific weight, (lb. per gal.) per ASTM, Meth. D1475	8.1 ± .3
Solids Content, % by weight per Fed-Std-141, Meth.4044	100
Viscosity, centipoise per Fed-Std-141, Meth.4287	7800 ± 1000
Flashpoint, °C (°F) per ASTM, Meth. D56	102 (215)
VOC (grams / liter)	0
Cure Mechanism	Moisture
Recommended Coating Thickness	2-8 mils
Drying Time to Handle per Fed-Std-141, Meth.4061	3 - 5 hours
Recommended Curing Conditions	24 hrs. @ room temp or 20 minutes @ 170°F*
*Placing a pan of water in the oven will greatly accelerate curing	
Time required to Reach Optimum Properties	7 days
Recommended Stripper	Stripper 1090
Pot Life at Room Temperature	Process Dependent
Shelf life at Room Temperature	6 months from date of shipment if stored in the original unopened container at temperatures of 80°F or below.

Properties of Cured HumiSeal

Thermal Properties	
Continuous Use Operating Range °C (°F)	-65(-85) to 200 (390)
Thermal Shock, per MIL-I-46058C	Passes
Solderability	Fair
Coefficient of Thermal Expansion - DMA	168ppm
Glass Transition Temperature - TMA	79°C
Young's Modulus - DMA	160psi
Physical Properties	
Clarity	Transparent
Build per Dip, mils, per ASTM, Meth.D823	5
Flexibility, per MIL-I-46058C	Excellent
Adhesion, per ASTM, Meth.D2197	Excellent
Flammability, per ASTM, Meth. D635	Self extinguishing
Weather Resistance	Very Good
Electrical Properties	
Dielectric Withstand Voltage, volts per MIL-I-46058C	>1,500
Dielectric Breakdown Voltage, volts, per ASTM, Meth. D149	7000
Dielectric Constant, at 1MHz and 25°C, per ASTM-D150-65T	2.5
Dissipation Factor, at 1MHz and 25°C, per ASTM-D150-65T	0.01
Insulation Resistance, ohms, per MIL-I-46058C	500 x 10 ¹² (500T)
Moisture Resistance, ohms, per MIL-I-46058C	100 x 10 ⁹ (100G)
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.

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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 that may lead to assembly failures.

HumiSeal 1C49 may be applied by brush, dip, or spray.

Brushing

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

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. Blanketing dip tanks with dry gas like nitrogen can extend pot life.

Spraying

HumiSeal 1C49 may be sprayed using some types of spraying equipment designed for high viscosity coatings. Conventional spray equipment may leave bubbles in cured HumiSeal 1C49 coatings. When in doubt test spray equipment before spraying production boards. Spraying should be done under an exhaust hood so that the mist is carried away from the operator.

Storage

HumiSeal Type 1C49 should be stored at 80°F or below, away from excessive heat, in tightly closed containers. If coating is partially used, the container should be purged with dry nitrogen prior to resealing. Avoid direct sunlight. Prior to use, allow the product to equilibrate for 24 hours at 65-90°F.

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 a 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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