

HumiSeal 1C51

Silicone Coating

System Description

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 meets all VOC requirements. HumiSeal 1C51 is Qualified to MIL-I-46058C, type SR and UL approved, File No. E105698. It contains an optical brightener for inspection under black light. The final film demonstrates excellent flexibility and is repairable.

Properties of Liquid HumiSeal

Density, (g/cm ³) per ASTM, Meth. D1475	0.99 ± 0.01
Solids Content, % by weight per Fed-Std-141, Meth.4044	98
Viscosity, centipoise per Fed-Std--141, Meth. 4287	550 ± 50
Flashpoint, per ASTM, Meth. D56	121°C
Recommended Coating Thickness	8 mils -
Recommended Curing Conditions	10 - 15 min. @ 105 ⁰ C
Time Required to Reach Optimum Properties	10 minutes
Recommended Stripper	Mechanical removal
Pot Life at Room Temperature	>30 Days+
Shelf Life at Room Temperature	6 months

Properties of Cured HumiSeal

Thermal Properties

Continuous Use Operating Range °C	-65 ⁰ C to +200 ⁰ C
Thermal Shock, MIL-I-46058C	Pass
Solderability	Fair
Coefficient of Thermal Expansion - DMA	154ppm /°C
Glass Transition Temperature - TMA	81 ⁰ C
Young's Modulus - DMA	512psi

Physical Properties

Clarity	Clear
Build per Dip, mils, per ASTM, Meth.D823	3
Flexibility, 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, per ASTM, Meth. D149	7000
Dielectric Constant, at 1MHz and 25 ⁰ C, per ASTM-D150-65T	2.4
Dissipation Factor, at 1MHz and 25 ⁰ C, per ASTM-D150-65T	0.01
Insulation Resistance, ohms, per MIL-I-46058C	500 x 10 ¹²
Moisture Resistance, ohms, per MIL-I-46058C	80 x 10 ⁹

Chemical Properties

Main Constituent	Silicone
Fungus Resistance, per ASTM-G21	Passes
Chemical Resistance	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 Type 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 Type 1C51 may be brushed. Uniformity of the film depends on component density and operator's technique.

Storage

HumiSeal Type 1C51 should be stored at 5-25C, away from excessive heat, in tightly closed containers. Avoid direct sunlight. Refrigeration of unused material will significantly extend shelf life. Prior to use, allow the product to equilibrate for 24 hours at room temperature.

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.

NOTE: Thermal curable silicones may be cure inhibited by a variety of materials i.e.; amines, acrylates etc. It is recommended that process/materials compatibility be considered when incorporating HumiSeal 1C51 into the production environment. Cotton gloves only should be worn by the operators.

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