

HumiSeal® 1C51 Aerosol
Silicone Conformal Coating
Technical Data Sheet

HumiSeal® 1C51 Aerosol is a single component, fast thermal-curing silicone conformal coating. HumiSeal® 1C51 Aerosol demonstrates excellent flexibility and contains an optical brightener for inspection under black light. HumiSeal® 1C51 Aerosol coating is MIL-I-46058C qualified, IPC-CC-830 and RoHS Directive 2011/65/EC compliant as well as recognized under UL File Number E105698.

Properties of HumiSeal® 1C51 Aerosol

Min. Solids Content, % by weight per Fed-Std-141, Meth. 4044	40-45 %
VOC	2 grams/litre
Recommended Coating Thickness	50 - 200 microns
Recommended Curing Conditions	10 - 15 minutes @ 105 - 130ºC
Time Required to Reach Optimum Properties	15 minutes
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	< -65ºC
Coefficient of Thermal Expansion - TMA	296 ppm/°C
Modulus - DMA	46 MPa @ -40ºC
	3.9 MPa @ 25ºC
	3.3 MPa @ 80ºC
Flammability, per UL 94	V-0
Dielectric Withstand Voltage, per MIL-I-46058C	>1500 volts
Dielectric Breakdown Voltage, per ASTM D149	7000 volts
Dielectric Constant, at 1MHz and 25°C per ASTM D150-98	2.4
Dissipation Factor, at 1MHz and 25°C per ASTM D150-98	0.01
Insulation Resistance, per MIL-I-46058C	5.0×10^{14} ohms (500TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	1.0×10^{10} ohms (10GΩ)
Fungus Resistance, per ASTM G21	Passes

Application of HumiSeal® 1C51 Aerosol

1. Allow 48 hours minimum to reach room temperature before using cans stored or received during cold weather.
2. When applied in conditions of high ambient humidity, blushing (cloudy white film) may appear. Heating the coated assembly in an oven for 1/2 hour at 76°C eliminates this condition.
3. Cleanliness of the substrate is extremely important to the successful application of a conformal coating. Surfaces should be free of moisture, dirt, wax, grease and all other contaminants. Otherwise, ionic or organic residues on the substrate could be trapped under the coating and cause problems with adhesion or electrical properties. The highest long term reliability for a coated printed circuit assembly will be when the conformal coating is applied over a clean, dry substrate.

   The application of conformal coatings over no clean flux is a common practice. The user should perform adequate testing to confirm compatibility between the conformal coating and their particular assembly materials and process conditions. Please contact HumiSeal for additional information.

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4. Mask areas not requiring coating from overspray using suitable non-silicone masking methods or materials.
5. Shake can vigorously before using and repeat frequently during use.
6. Best results are obtained by spraying from a distance of 30 - 40cm in light even coats. A film thickness of 25 - 75 microns is sufficient to provide protection.
7. To clean nozzle after use, hold can upside down, then press nozzle for a few seconds.

Curing

HumiSeal® 1C51 Aerosol is a thermally cured conformal coating. The actual curing temperature of HumiSeal® 1C51 Aerosol 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 thermally cured silicones like HumiSeal® 1C51 Aerosol may be inhibited by a variety of materials i.e.; amines, acrylates, certain ingredients from latex rubber etc. It is recommended that process and material compatibility be considered when incorporating HumiSeal® 1C51 Aerosol into the production environment. Cotton gloves are recommended for operators who will be handling assemblies prior to coating with HumiSeal® 1C51 Aerosol.

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 MSDS/SDS prior to use.

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