

HumiSeal[®] 1C49LV Silicone Conformal Coating

Technical Data Sheet

HumiSeal[®] 1C49LV is a moisture curing, low viscosity, VOC-free silicone conformal coating which provides excellent moisture and environmental protection for printed circuit assemblies. HumiSeal[®] 1C49LV is solvent free. The coating demonstrates outstanding flexibility, fluoresces under UV light for ease of inspection and can be repaired. HumiSeal[®] 1C49LV can be cured at room or at elevated temperatures. HumiSeal[®] 1C49LV 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[®] 1C49LV

Density, per ASTM D1475	0.97 ± 0.03 g/cm ³
Min. Solids Content, % by weight per Fed-Std-141, Meth. 4044	90 %
Viscosity, per Fed-Std-141, Meth. 4287	550 ± 250 centipoise
VOC	0 grams/litre
Recommended Coating Thickness	50 - 200 microns
Drying Time to Handle per Fed-Std-141, Meth. 4061	60 min
Recommended Curing Conditions	24 hrs @ RT or 20 min @ 76°C*
Time required to Reach Optimum Properties	7 days
Recommended Stripper	HumiSeal [®] Stripper 1091
Shelf Life at Room Temperature, DOM	12 months
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 200°C
Coefficient of Thermal Expansion - TMA	323 ppm /°C above T _g
Glass Transition Temperature - DSC	< -65°C
Modulus - DMA	9.0 MPa @ -40°C
	3.8 MPa @ 25°C
	3.2 MPa @ 80°C
Tensile per ASTM D-412	30-50 psi
Elongation per ASTM D-412	80-120 %
Flammability, per UL94	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	2.5
Dissipation Factor, at 1MHz and 25°C per ASTM D150-98	0.01
Insulation Resistance, per MIL-I-46058C	5.0 x 10 ¹⁴ ohms (500TΩ)
Moisture Insulation Resistance, per MIL-I-46058C	1.0 x 10 ¹⁰ ohms (10GΩ)
Fungus Resistance, per ASTM G21	Passes

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

Application of HumiSeal[®] 1C49LV

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.

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Brushing

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

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[®] 1C49LV may be applied using most conventional spraying equipment. 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[®] 1C49LV.

Storage

HumiSeal[®] 1C49LV 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[®]

HumiSeal North America

201 Zeta Drive
Pittsburgh, PA 15238
USA
Tel: +1 412-828-1500
Toll Free (US only): 866-828-5470
sales@humiseal.com

HumiSeal Technical Center

295 University Avenue
Westwood, MA 02090
USA
Tel: +1 781-332-0734
Fax: +1 781-332-0703
techsupport@humiseal.com

HumiSeal Europe

505 Eskdale Road, IQ Winnersh
Berkshire RG41 5TU
UK
Tel: +44 (0)1189 442 333
Fax: +44 (0)1189 335 799
europesales@chasecorp.com

HumiSeal India

J-154, M.I.D.C Bhosari
Pune 411 026
Maharashtra
India
Tel: +91 20 66308098
indiatechsupport@chasecorp.com

HumiSeal S.A.R.L

4/6 Avenue Eiffel
78420 Carrieres-Sur-Seine
France
Tel: +33 (0) 1 30 09 86 86
Fax: +33 (0) 1 30 09 86 87
humiseal.sarl@chasecorp.com

HumiSeal Asian Support

Tel: 852-9451-6434
Fax: 852-2413-6289
asiatechsupport@humiseal.com

HumiSeal Europe Support

Tel: +44 (0)1189 442 333
Fax: +44 (0)1189 335 799
europetechsupport@chasecorp.com

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