

# HumiSeal®

# HumiSeal® 1C63 Dual Cure Silicone Conformal Coating Technical Data Sheet

HumiSeal® 1C63 is a UV/RTV curing, oxime-type cure silicone conformal coating which provides excellent moisture and environmental protection for printed circuit assemblies. HumiSeal® 1C63 is a non-corrosive, single component coating which will cure upon exposure to either a UV light source or atmospheric moisture at ambient or elevated temperatures. The material is tack-free after exposure to UV light. A secondary moisture cure will cure unexposed areas of the coating within 24 hours at ambient temperature, 50% relative humidity. HumiSeal® 1C63 is self-leveling, with excellent weathering resistance. HumiSeal® 1C63 is recognized under UL File Number E105698 and RoHS Directive 2011/65/EC compliant.

## Properties of HumiSeal® 1C63

Density, per ASTM D1475

Viscosity, per Fed-Std-141, Meth. 4287

VOC

Room Temperature Skin Over time, 1/8" thickness

Recommended UV Cure\*

Secondary Cure, for shadow areas

Time Required to Reach Optimum Properties, 1/8" thickness

Recommended Stripper

Shelf Life at Room Temperature, DOM Glass Transition Temperature - DSC Tensile Strength, per ASTM D412 Elongation, per ASTM D412

Thermal Shock, 50 cycles per MIL-I-46058C

Volume Resistivity, per ASTM D257 Surface Resistivity, per ASTM D257 Shore Hardness, A, per ASTM D2240

Flammability, per UL94

Dielectric Withstand Voltage, per MIL-I-46058C

Insulation Resistance, per MIL-I-46058C

Moisture Insulation Resistance, per MIL-I-46058C

Fungus Resistance, per ASTM G21

\*Microwave UV cure ovens equipped with "H" style bulbs recommended

1.04 +/- 0.06 g/cm<sup>3</sup> 3500 ± 1500 centipoise

< 50 grams/liter 60 minutes

See curing section below

24 hrs @ RT or 20 min @ 76°C

7 days

HumiSeal® Stripper 1090

6 months < -90°C 100 psi 100%

-65°C to 200°C 7.97 x10<sup>14</sup> ohm-cm

6.26 x10<sup>17</sup> ohms per square

15 V-1

>1500 volts

1.1 x  $10^{12}$  ohms (1.1 T $\Omega$ ) 1.1x  $10^{10}$  ohms (11 G $\Omega$ )

**Passes** 

# Application of HumiSeal® 1C63

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" assembly 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.

1C63 is designed for application without additional thinning. Solvents or other thinners should not be mixed with 1C63.

#### **Brushing**

Uniformity of the film depends on component density and operator's technique. HumiSeal® 1C63 may be applied by brush. The actual uniformity of the finished coating will depend on component density and operator technique. Brushes may be cleaned promptly using solvent.

27216 Page 1 of 3



# HumiSeal®

### HumiSeal® 1C63 Technical Data Sheet

#### **Dispensing**

HumiSeal® 1C63 may be applied via standard selective coating equipment such as jet or atomized spray as well as needle valves. The source air used for spraying must be dry to prevent premature curing by the effective secondary cure mechanism. An inert gas such as nitrogen or argon is highly recommended. The dispensing should be done with adequate ventilation so that vapour and mist are carried away from the operator.

#### Curing

HumiSeal® 1C63 is a highly cross linked coating. In order to achieve maximum cross linking density, the product must be exposed to the correct spectral output. The table below outlines the required dosage and irradiance values necessary to properly cure HumiSeal® 1C63. After UV exposure and return to room temperature the coating should be tack free.

		DOSE J/cm2				IRRADIANCE W/cm2			
		UV A	UV B	UV C	UV V	UV A	UV B	UV C	UV V
	MIN	0.700	0.700	0.150	0.750	0.700	0.700	0.150	0.700
	MAX	3.000	3.000	0.600	3.500	1.150	1.150	0.240	1.300

Values measured with a Powerpuck II UV radiometer

HumiSeal® 1C63 was designed to be cured using a microwave UV oven equipped with an "H" style bulb. Arc systems can cure HumiSeal® 1C63 however care must be taken during the equipment selection process to ensure minimum dosage and irradiance values can be obtained. Due to the variations possible in curing equipment type and configuration, it is strongly recommended that you contact HumiSeal® Technical Support to discuss your equipment and process in detail.

#### Storage

HumiSeal® 1C63 is photosensitive. The product should not be exposed to direct sunlight or full spectrum fluorescent lighting. HumiSeal® 1C63 should be stored at 27°C or below in tightly closed containers in a dry place away from direct sunlight. HumiSeal® 1C63 is also a moisture sensitive material. If coating is partially used, the container should be purged with dry nitrogen or argon prior to resealing to protect the remainder of the coating. 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 MSDS/SDS prior to use.

27216 Page 2 of 3



# HumiSeal®

### 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 europeansales@chasecorp.com

### **HumiSeal Europe Support**

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

The information contained here is provided for product selection purposes only and is not to be considered specification or performance data. Under no circumstance will the seller be liable for any loss, damage, expense or incidental or consequential damage of any kind arising in connection with the use or inability to use its product. Specific conditions of sale and Chase's limited warranty are set out in detail in Chase Corporation Terms and Conditions of Sale. Those Terms and Conditions are the only source that contain Chase's limited warranty and other terms and conditions.

27216 Page 3 of 3