

TECHNICAL DATA SHEET

System Description

A two component, heat cured, modified epoxy system. This coating is MIL-I-46058C and IPC-CC-830 qualified. Particularly suited for coating printed circuit assemblies and components where exceptional resistance to solvents and/or chemicals is required. Contains fluorescent tracer for viewing under ultraviolet light. HumiSeal 2A53 is in full compliance with the RoHS Directive (Directive 2002/95/EC).

Properties of Liquid HumiSeal (Mixture of Part A&B)

Specific weight, (lb. per gal.) per ASTM, Meth. D1475	7.8 ± .3
Solids Content, % by weight per Fed-Std-141, Meth.4044	54 ± 5
Viscosity, centipoise per Fed-Std--141, Meth. 4287	350 ± 150
Flashpoint, °C (°F) per ASTM, Meth. D56	15 (59)
VOC (grams / liter)	447
Drying Time to Handle per Fed-Std-141, Meth.4061	5 hours
Recommended Curing Conditions	2 hrs. @ 200°F
Time Required to Reach Optimum Properties	7 days
Thinner, if needed (dipping, brushing, spraying)	Thinner 535
Pot Life at Room Temperature	24 hrs.
Shelf Life at Room Temperature	6 months from date of shipment.
Mixing Ratio, Part A to Part B (By Volume)	1:1

Properties of Cured HumiSeal

Thermal Properties

Continuous Use Operating Range °C(°F)	-65°C (-85°F) to +125°C (257°F)
Thermal Shock, per MIL-I-46058C	Passes
Solderability	Poor
Coefficient of Thermal Expansion - DMA	56ppm / °C
Glass Transition Temperature - TMA	19°C
Young's Modulus - DMA	4672psi

Physical Properties

Clarity	Transparent
Build per Dip, mils, per ASTM, Meth.D823	1
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	8000
Dielectric Constant, at 1MHz and 25°C, per ASTM-D150-65T	3.0
Dissipation Factor, at 1MHz and 25°C, per ASTM-D150-65T	0.03
Insulation Resistance, ohms, per MIL-I-46058C	200 x 10 ¹² (200T)
Moisture Resistance, ohms, per MIL-I-46058C	28 x 10 ⁹ (28G)

Chemical Properties

Main Constituent	Epoxy
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 coatings may be applied by brush, dip or spray.

Dipping

Depending on the complexity, density and configuration of components on the assembly, it may be necessary to reduce the viscosity of HumiSeal 2A53 with HumiSeal Thinner 535 in order to obtain a uniform film. Once optimum viscosity is determined, a controlled rate of immersion and withdrawal (2 to 6" per minute) will further insure even deposition of the coating and ultimately a uniform film. During the application, evaporation of solvent causes an increase in viscosity that should be adjusted by adding small amounts of Thinner 535. Viscosity in the dip tank should be regularly checked by the use of a simple measuring device such as a Zahn or Ford viscosity cup.

Spraying

HumiSeal Type 2A53 can be sprayed using conventional spraying equipment. As a rule, the addition of Thinner 535 is necessary to assure a uniform spray pattern resulting in pinhole free film. The amount of thinner and spray pressure will depend on the specific type of spray equipment used. The spraying should be done under an exhaust hood so that the vapor and mist are carried away from the operator. The recommended ratio of HumiSeal Type 2A53 to HumiSeal Thinner 535 is 1 to 1 by volume, as a starting point. The quantities may be adjusted to obtain a uniform coating.

Brushing

HumiSeal Type 2A53 may be brushed with a small addition of HumiSeal Thinner 535. Uniformity of the film depends on component density and operator's technique.

Storage

HumiSeal Type 2A53 should be stored at room temperature, away from excessive heat, in tightly closed containers. HumiSeal products may be stored at temperatures of 0-100°F. Avoid direct sunlight. Prior to use, allow the product to equilibrate for 24 hours at 65-90°F. For HumiSeal types 1A20, 1C47, 1C49 and 2A64: if coatings are partially used, the container should be purged with dry nitrogen prior to resealing.

Caution

The solvents in Type 2A53 are flammable. Do not use in presence of open flame or sparks. Avoid inhalation of vapors or 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.

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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