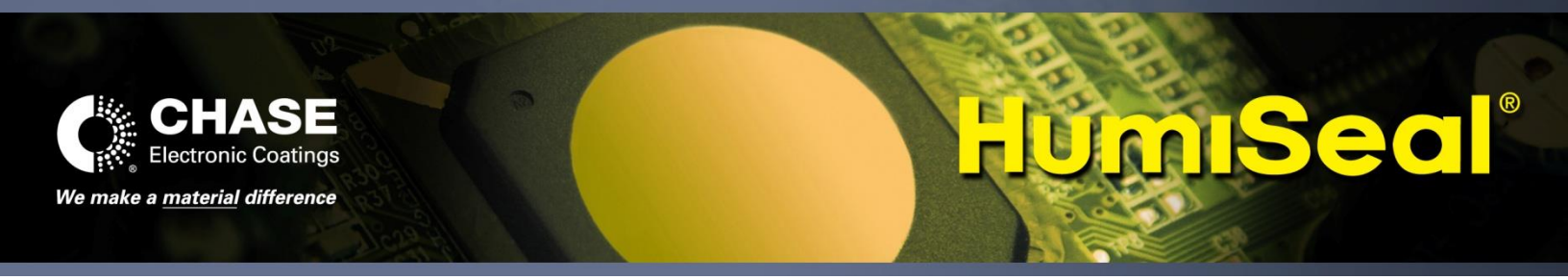

HumiSeal® UVA300

UV Curable Conformal Coatings

Provisional Technical Data Sheet*

HumiSeal® UVA300 is a one-part, high solids, dual-cure acrylated polyurethane conformal coating possessing LED cure capability. LED cure technology benefits from having lower energy consumption, reduced temperatures, no ozone or UV-C generation and increased equipment lifetime. HumiSeal® UVA300 series has been developed to have the following characteristics:

- Tack free cure with LED UV light at 385nm or 395nm
- Application possible at elevated temperatures to give increased process stability and reduced applicator pressure.
- Secondary cure mechanism that will fully cure any unexposed areas of the coating within 7 days at ambient conditions**
- Fluoresce under UV light to allow coating inspection and can be applied by all selective coating equipment.
- High flexibility compared with other UV curable conformal coatings, giving improved adhesion and performance in thermal cycling tests.
- Excellent chemical and moisture resistance.

* This technical data sheet contains provisional data which may be revised
**At higher temperature or humidity levels, this time may be reduced.

HumiSeal® UVA300 are non-flammable, contain no VOCs or solvent, and are RoHS Directive EU 2015/863 and China Standard GB30981-2020 compliant.

Properties of HumiSeal® UVA300 Liquid Coating

Density	1.0 to 1.1 g/cm^3
Minimum Solids Content	95 %
Viscosity, per Fed-Std-141, Meth. 4287	300 $\pm$ 50 centipoise
Shelf Life at Room Temperature, from DOM	12 months

Properties of HumiSeal® UVA300 Cured Coating

Recommended Coating Thickness	25 - 130 microns
Flash Point	>100 ^{o}C
Recommended UV Cure	See curing section below
Thermal Shock, 50 cycles per MIL-I-46058C	-65°C to 125°C
Shore Hardness A / D	80 / 28
Flammability, meets UL-94	V-1
Dielectric Withstand Voltage, per MIL-I-46058C	> 1500 V
Surface Insulation Resistance, per IPC-J-STD-004 (mod.)	8.75 $\log_{10}$ Ohms
Resistance to Chemicals	Excellent

Application of HumiSeal® UVA300

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.

Spraying

HumiSeal® UVA300 can be applied via standard selective coating equipment or by conventional hand spray equipment. The source air used for spraying must be dry (a dry inert gas is highly recommended) to prevent premature curing of the secondary cure mechanism. The spraying should be done with adequate ventilation so that the vapor and mist are carried away from the operator.

Brushing

HumiSeal® UVA300 may be applied by brush for rework or touch up only. Brush must be cleaned with solvent promptly after use.

Curing

HumiSeal® UVA300 is a highly crosslinked coating. In order to achieve maximum crosslinking density, the product must be exposed to the correct spectral output. Lamp units >8w/cm^2 at 385nm (14 W) or 395nm (12 W) have been demonstrated to be sufficient. Conveyor speed and lamp height have an influence on coating cure level. The table below outlines the recommended dosage values that have been demonstrated to adequately cure UVA300 with LED UV. Users should perform adequate testing to ensure appropriate cure with their selected equipment set.

UVA	Dose J/cm^2
MIN	10
MAX	30

HumiSeal® UVA300 is capable of being cured using a microwave UV oven equipped with an "H" style bulb. The table below outlines the required dosage and irradiance values necessary to cure HumiSeal® UVA300 with both Arc and Microwave equipment types. Minimum figures should provide a tack free surface. The maximum recommendation represents highest tested values by HumiSeal®. Because of 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.

		Dose J/cm2*			Irradiance W/cm2*		
		UVA	UVB	UVC	UVA	UVB	UVC
Min	Arc System	1.5	1.5	0.40	0.50	0.50	0.10
Min	Microwave System	2.0	2.0	0.40	0.70	0.70	0.15
Max	Arc System	2.8	2.7	0.80	0.90	0.80	0.20
Max	Microwave System	3.0	3.0	0.60	1.15	1.15	0.24

**Values measured with a Powerpuck II UV radiometer*

HumiSeal® UVA300 contains a reliable secondary moisture cure mechanism which will cure any shadow areas on the assembly within 7 days at ambient moisture.

Clean Up

To flush equipment and clean uncured HumiSeal® UVA300, non-alcohol based solvents should be used. HumiSeal® Thinner 521/Thinner 521EU is recommended.

Rework
HumiSeal® UVA300 are highly cross-linked UV cured coatings. The cured film has a high degree of environmental and chemical resistance and will be more difficult to remove than traditional conformal coatings. Thermal displacement and mechanical abrasion are suitable options for rework of HumiSeal® UVA300.

Storage
HumiSeal® UVA300 are photosensitive. The product should not be exposed to direct sunlight or full spectrum fluorescent lighting. Material should be stored away from excessive heat, in tightly closed opaque containers at 0 to 25°C to ensure maximum shelf life is achieved. Prior to use, allow the product to equilibrate for 24 hours at room temperature. HumiSeal® UVA300 is a moisture curing coating and care should be taken to protect process vessels and partial containers from moisture. Partial containers must be purged with a dry, inert gas such as dry air, nitrogen or argon before closure, otherwise premature polymerization by atmospheric moisture will occur.

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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