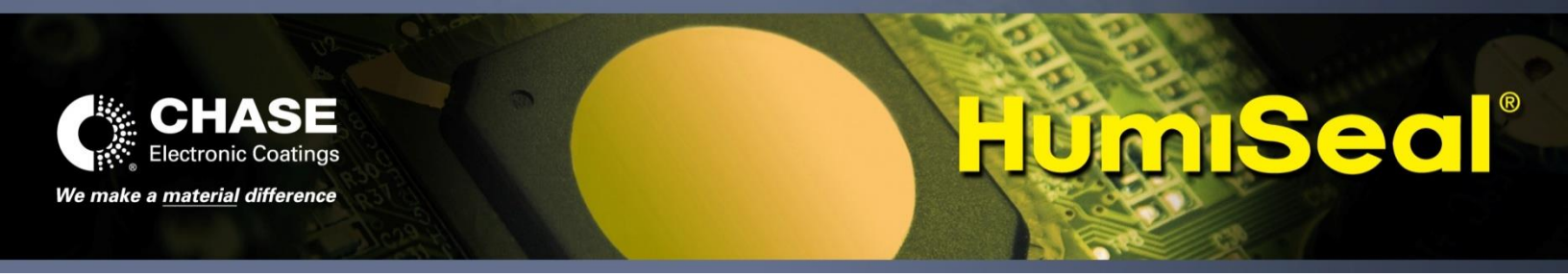

HumiSeal® UV80LED LV
Dual Curable Conformal Coating

HumiSeal® UV80LED LV is a high solids, UV curable, urethane acrylate conformal coating. This material has been formulated at a low viscosity suitable for application using selective coating equipment and can be cured by LED UV systems to give a tack free coating

HumiSeal® UV80LED LV has been specifically developed to:

- Be low viscosity suitable for film coater application without need for pre-heating
- Have excellent adhesion.
- Have excellent moisture resistance.
- Have high electrical properties which exceed over 10.5 Log(Ohms) passing IPC-CC-830 requirements according to IPC TM 650 2.6.3.4.
- Fluorescence under UV light to allow coating inspection.
- Be cured tack-free using a UV LED lamp system
- Have a secondary cure mechanism that will fully cure any unexposed areas of the coating within 7 days at ambient conditions to give a transparent solid
- Be fungus resistant.

HumiSeal® UV80LED LV meets the following standards:

- Compliant with RoHS Directive EU 2015/863
- Compliant with China RoHS 2
- Compliant to China Standard GB30981-202
- Contains no SVHCs to EU REACH 1907 Directive

Properties of HumiSeal® UV80LED LV Liquid Coating

Minimum Solids Content, % by weight	98 %
Viscosity, at 25°C	50 to 100 Centipoise
Shelf Life at Room Temperature, DOM	12 Months
Recommended UV or LED Cure	See Curing Below

Properties of HumiSeal® UV80LED LV Cured Coating

Coating Thickness, as recommended by IPC guidelines	25 - 125 microns
Coating Thickness, as recommended for application	30 – 130 microns
Time to reach optimum properties	7 days after UV LED cure
Operating temperature range	-65°C to 150°C
Thermal Shock, per IPC-TM-650 2.6.7.1, Class 3	-65°C to 125°C
Glass Transition Temperature - DSC	45°C
Dielectric Withstand Voltage (Per MIL-I-46058C)	>1500V
Surface Insulation Resistance (per IPC J-STD-004 (mod.))	10.5 log Ohms
Flammability, per UL-94	TBD
Dielectric Strength	60kV/mm
Volume Resistivity	1 x 10^{14} Ohms / cm

Application of HumiSeal® UV80LED LV

A minimum temperature of 16°C and 50% Relative Humidity is recommended for application.

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® UV80LED LV can be applied via standard selective coating equipment or by conventional hand spray equipment. The air source used for spraying must be dry (a dry air supply or dry inert gas (nitrogen or argon) 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® UV80LED LV may be applied by brush for rework or touch up only. Brush must be cleaned with solvent promptly after use.

Curing
HumiSeal® UV80LED LV is a highly crosslinked coating. To achieve maximum crosslinking density, the product must be exposed to the correct spectral output. HumiSeal has modelled the performance of UV80LED LV using 385nm and 395nm LED lamp units. A minimum dose of 3 J/cm^2 is recommended. *(Values measured with a EIT LED radiometer).* A higher dose will not be detrimental to the material.

Due to the effects of oxygen inhibition there may be a slight residual tack immediately after cure however, this disappears after a short period of time. The cure recommendations may change as curing technology develops.

Heat is also an important component with UV cure, and different systems produce different heat outputs. Higher heat levels allow UV cure at lower dose/irradiance levels. Consequently, HumiSeal recommend that curing is discussed with HumiSeal® Technical staff to ensure the exact customer process being used will meet the coating cure requirements.

HumiSeal® UV80LED LV contains a reliable secondary moisture cure mechanism which will cure any shadow areas on the assembly within 7 days at ambient moisture. It is recommended that the relative humidity is above 50% to enable the secondary cure mechanism to take place.

To flush equipment and clean uncured HumiSeal® UV80LED LV, non-alcohol based solvents should be used. HumiSeal® Thinner 73, 521or 521EU are recommended.

Rework
HumiSeal® UV80LED LV is a highly crosslinked UV cured coating. 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® UV80LED LV.

Storage
HumiSeal® UV80LED LV is photosensitive. The product should not be exposed to direct sunlight or full spectrum fluorescent lighting. HumiSeal® UV80LED LV should be stored between 5 to 30°C, to maximize shelf life. Temporary storage at 40C, for example during transport, should not deteriorate the stability of the material.

Prior to use, allow the product to equilibrate for 24 hours at room temperature. HumiSeal® UV80LED LV is a moisture curing material 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 SDS prior to use.

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