UVCL
UV Cure Conformal Coating

UVCL is a low viscosity, single-part conformal coating, which cures within seconds of exposure to the correct dose of UV light. It has been specifically designed to offer the highest level of protection for PCBs and can be applied using selective spray equipment. UVCL is the next generation of VOC-free conformal coatings.

- Dual cure system; secondary moisture cure for full cure, even in shadow areas
- Eliminates the use of solvents; VOC-free and non-flammable coating
- No dilution required; low viscosity, ready to use for selective spray application
- Ultimate protection in harsh environments, including high humidity, corrosive and chemical atmospheres

Approvals	**RoHS-2 Compliant (2011/65/EU):**	**Yes**
	IPC-CC-830:	**Meets Requirements**
	IEC-61086:	**Meets Requirements**
	UL746-QMJU2:	**Pending**
Liquid Properties	Appearance:	Pale Coloured Liquid
	Base material:	Urethane acrylate
	Density @ 20°C (g/ml):	1.1
	Solids Content:	100%
	VOC content:	0%
	Flash Point:	>90°C
	Viscosity @ 20°C (mPa s):	150-300
	Coverage @ 50µm:	$20m^2$/litre
Dry Film Coating	Colour:	Colourless
	Operating Temperature Range:	-65°C to +125°C
	Surface Insulation Resistance:	$1 \times 10^{15}\Omega$
	Dielectric Strength:	27 kV/mm
	Dielectric Constant @ 1MHz:	3.5
	Dissipation Factor @ 1MHz, 25°C:	0.03
	Flammability:	UL94 V-0
	Moisture Resistance (IPC-CC-830):	$7 \times 10^{12}\Omega$
	Thermal Cycling:	
	IPC-CC-830 (-65°C to +125°C):	Pass 100 Cycles
	Additional (-40°C to +125°C):	Pass >1000 Cycles

Description	Packaging*	Order Code	Shelf Life
UVCL UV Cure Coating	4 Litre Bulk	UVCL04L	12 Months
Industrial Machine Cleaner	5 litre Bulk	IMC05L	36 months

*Other packaging sizes may be available upon request.

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Certificate No. FM 32082

Directions for Use

Substrates should be thoroughly cleaned before coating to ensure satisfactory adhesion to the substrate. All flux residues should be removed as they may become corrosive or affect adhesion if left on the PCB. Electrolube manufacture a range of cleaning products using both hydrocarbon solvent and aqueous technology. UVCL has been specifically designed for automated processes using selective spray technology however other spraying techniques and touch-up application via brush may also be employed. The coating application must be done away from the UV light source to prevent premature curing.

Spraying – Bulk

UVCL is supplied in a ready to use viscosity for selective spraying. Due to the secondary moisture cure it is advised that all storage tanks are kept sealed from moisture during use to allow a longer pot life. Nozzles and applicator heads should be immersed in machine cleaner (IMC) when not in use and it is advised that the nozzles are cleaned frequently. It is also advised that machines are flushed through with a suitable machine cleaner before and after the use of UVCL; water and alcohol based cleaners should not be used. Depending on the spray equipment and parameters used, UVCL can be applied in a range of thicknesses; the exact thickness should be determined for each application however a minimum of 25 microns and maximum of 200 microns are advised.

Brushing

As it is a manual process with many variables, brush coating is only advised for touch-up applications. Brushes should be clean and dry prior to use and exposure to UV light minimised to avoid premature curing.

Curing

The speed of UV cure depends on UV intensity, wavelength, applied coating thickness and height of components. Coating in shadow areas that do not receive the full UV dose will cure by the secondary moisture cure mechanism. This will take 7-14 days, depending on the thickness of the coating, humidity and temperature.

It is essential that the correct UV exposure is determined for each board prior to any production, and it is recommended that a radiometer is used to ensure the dose is consistent. UVCL has been designed to achieve the optimum in cured film properties through a simple application process. As such, UVCL utilises a combination of wavelengths, with the majority dose of UVA, the most common form of UV light. UVCL will cure using standard H or D type bulbs, with UV doses in the range:

- UVA dose: 600–3000 mJ/cm^2
- UVB dose: 400-1000 mJ/cm^2
- UVC dose: 40-200 mJ/cm^2

The UV doses above refer to parameters measured with an EIT UV Power Puck. Further information on the application and curing of UVCL is available on request.

Inspection

UVCL contains a fluorescent dye, which allows ‘blacklight’ inspection of the PCB after coating, to ensure complete and uniform coverage. The stronger the reflected UV light, the thicker the coating layer is. UV light in the region of 375nm should be used for inspection.

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