

## UVC\_LV

### Ultra Low Viscosity UV Coating

#### Product Description

UVC\_LV is an ultra-low viscosity, single component, UV light curing conformal coating specifically designed for the protection of electronic circuitry. The viscosity of UVC\_LV is very low and easy to exhaust bubble. It is suitable for all kinds of spraying process, especially for water curtain spraying. UVC\_LV is VOC-free, economic, and environment friendly UV coating.

UVC\_LV has excellent properties of moisture resistance, yellowing resistance and chemical resistance.

#### Features

- Ultra-low viscosity, suitable for all kinds of spraying process, especially for water curtain spraying
- VOC-free, economic, and environment friendly
- Excellent transparency and UV resistance
- Can be applied to the LED industry
- Excellent adhesion to a wide variety of substrates and salt spray resistance properties
- Wide operating temperature range.
- Fluoresces under UV light for ease of inspection
- Cured coating can be removed with Electrolube remover gel ( DRG).
- Excellent Dielectric properties and insulativity properties

#### **Approvals:**

**IPC - CC- 830 :****UL746-QMJU2:****IEC-61086:****RoH-2 Compliant (2011/65/EU):****Meets approval****Meets approval****Meets approval****Meets approval**

## Liquid Properties

|                                    |                           |
|------------------------------------|---------------------------|
| Appearance:                        | Clear faint yellow liquid |
| Specific Gravity (Density) @ 20°C: | 1.03 g/ml                 |
| Viscosity @ 20°C:                  | 50-100 cps                |
| Recommended UV Energy:             | 1 - 5J/cm <sup>2</sup>    |

## Cured Film Coating

|                               |                                |
|-------------------------------|--------------------------------|
| Operating Temperature Range:  | -65°C to +135°C                |
| Hardness(pencil):             | ≥HB                            |
| Tensile Strength:             | 6 MPa                          |
| Dielectric Strength:          | 27 kv/mm                       |
| Dielectric Constant:          | 3.5 @ 1 MHz                    |
| Surface Resistivity:          | 4.0 x 10 <sup>15</sup> Ohms/cm |
| Volume Resistivity:           | 1.3 x 10 <sup>16</sup> Ohms/cm |
| Dissipation Factor:           | 0.03 @1 MHz 25°C               |
| Glass Transition Temperature: | 45°C                           |

| <u>Packing</u> | <u>Description</u> | <u>Order Code</u> | <u>Shelf Life</u> |
|----------------|--------------------|-------------------|-------------------|
| UVC_LV Coating | 1 Litre Bulk       | UVC_LV01L         | 12 Months         |
| UVC_LV Coating | 4 Litre Bulk       | UVC_LV04L         | 12 Months         |

## **Directions for Use**

UVC\_LV can be suitable for all kinds of process, such as sprayed, dipped or brushed, especially for water curtain spraying. To obtain a good flowing property, put it in the air for 5 minutes after spraying, dipping or brushing. Heating can accelerate the process. Exposed under 365nm wavelength of UV light, and ensure the UV light can irradiate the bonding surface thoroughly. The curing speed depends on UV intensity, distance between light source and adhesive layer, curing depth or clearance of layer, and light penetrability of substrate. Put the cover on instantly after use and supplement the dry air protection. Dispense adhesives away from light.

Substrates should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is achieved. Also, all flux residues must be removed as they may become corrosive if left on the PCB. Electrolube manufacture a range of cleaning products using both hydrocarbon solvent and aqueous technology. Electrolube cleaning products produce results within Military specification.

### Copyright Electrolube 2013

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification.

Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

Ashby Park, Coalfield Way,  
Ashby de la Zouch,  
Leicestershire LE65 1JR

T +44 (0)1530 419 600

F +44 (0)1530 416 640

BS EN ISO 9001:2008  
Certificate No. FM 32082

## **Spraying**

UVC\_LV is supplied in a ready to use viscosity for selective spraying, especially for water spraying process. 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 UVC\_LV; water and alcohol based cleaners should not be used. Depending on the spray equipment and parameters used, UVC\_LV 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.

## **Dip**

Ensure the coating material in the container has been allowed to stand for at least 1 hour for all the air bubbles to disperse. The board assemblies should be immersed in the UVC\_LV dipping tank in the vertical position, or at an angle as close to the vertical as possible. Connectors should not be immersed in the liquid unless they are very carefully masked. Electrolube Peelable Coating Mask Synthetic (PCS) is ideal for this application.

Leave submerged for approximately 10 seconds until the air bubbles have dispersed. The board or boards should then be withdrawn slowly (1 to 2 Seconds / mm) so that an even film covers the surface. After withdrawing, the boards should be left to drain over the tank or drip tray until the majority of residual coating has left the surface.

## **Brushing**

Ensure that the coating material has been allowed to settle for at least 1 hour. The coating should be kept at ambient temperature. 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. UVC\_LV has been designed to achieve the optimum in cured film properties through a simple application process. As such, UVC\_LV utilises a combination of wavelengths, with the majority dose of UVA, the most common form of UV light. UVC\_LV will cure using standard H or D type bulbs, with UV doses in the range:

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

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

### **Inspection**

UVC\_LV 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.

#### **Copyright Electrolube 2013**

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification.

Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

Ashby Park, Coalfield Way,  
Ashby de la Zouch,  
Leicestershire LE65 1JR

**T** +44 (0)1530 419 600

**F** +44 (0)1530 416 640

BS EN ISO 9001:2008  
Certificate No. FM 32082