

UVR-150G

(UL Name: UVR-150G)

UV CURABLE SOLDER MASK

-  **Screen Application**
-  **Green Glossy Finish**
-  **Hard Surface Finish**
-  **Short Cycle Time**

PROCESSING PARAMETERS FOR UVR-150G

UVR-150G is a one-component, green solder mask for screen printing application. This product has excellent printing characteristics, resistance to fluxes, and resistance subsequent processing. **UVR-150G** meets or exceeds the requirements of IPC SM-840E Class H and has a UL flammability rating of 94V-0.

UVR-150G	Color	Green
	Solids	100%
	Specific Gravity	1.5
	Viscosity	120-140 ps

MIXING **UVR-150G** requires no mixing.

PRE-CLEANING Prior to solder mask application, the printed circuit board surface needs to be cleaned. Various cleaning methods include Pumice, Aluminum Oxide, Mechanical Brush, and Chemical Clean. All of these methods will provide a clean surface for the application of **UVR-150G**. Hold time after cleaning the printed circuit board should be held to a minimum to reduce the oxidation of the copper surfaces.

SCREEN PRINTING Method: Automatic or Hand Screening

- Screen Mesh: 110-180
- Screen Mesh Angle: 22.5° Bias
- Screen Tension: 16 - 24 Newtons
- Squeegee: 60 – 80 shore
- Printing Speed: 2.0 – 9.9 inches/sec (5 – 25 cm/sec)
- Printing Pressure: 60 – 100 psi (4 – 7 bars)

PROCESSING PARAMETERS FOR UVR-150G

UV CURE

UVR-150G is cured by UV light to give the final property performance. Mercury vapor lamps or metal halide lamps rated at 200 W/in or 300 W/in are recommended. The UV curing should be done in a commercially available 2 lamp or 3 lamp conveyORIZED UV curing unit.

The following are typical cure conditions for UVR-150G when using 200 W/in mercury vapor lamps:

Conveyor Speeds	3 - 5 feet / minute / lamp
For a 2 lamp unit	6 - 10 ft. / minute
For a 3 lamp unit:	9 - 15 ft. / minute
UV Energy Readings*	2.5 - 4 joules

*measured with an International Light IL-390 radiometer

For Process Optimization please contact your local Taiyo America Representative

FINAL PROPERTIES FOR UVR-150G

IPC-SM-840E, Class H, Solder Mask Vendor Testing Requirements

TEST	SM-840 PARAGRAPH	REQUIREMENT	RESULT
Visual	3.4.8	Uniform in Appearance	Pass
Curing	3.4.5	Ref: 3.6.1.1, 3.7.1 and 3.7.2	Pass
Non-Nutrient	3.4.6	Does not contribute to biological growth	Pass
Dimensional	3.4.10	No Solder Pickup and Withstand 500 VDC	Pass
Pencil Hardness	3.5.1	Minimum "F"	Pass – (4H)
Adhesion	3.5.2	Rigid – Cu, Ni, FR-4	Pass
Machinability	3.5.3	No Cracking or Tearing	Pass
Resistance to Solvents and Cleaning Agents	3.6.1.1	Table 3 Solvents	Pass
Hydrolytic Stability and Aging	3.6.2	No Change after 28 days of 95-99°C and 90-98% RH	Pass
Solderability	3.7.1	No Adverse Effect J-STD-003	Pass
Resistance to Solder	3.7.2	No Solder Sticking	Pass
Dielectric Strength	3.8.1	500 VDC / mil Minimum	1100 VDC/mil
Thermal Shock	3.9.3	No Blistering, Cracking or De-lamination	Pass

Specific Class "H" Requirements

TEST	SM-840 PARAGRAPH	REQUIREMENT	RESULT
Flammability	3.6.3	UL 94V-0	Pass – File #E166421
Insulation Resistance Before Soldering	3.8.2	5 x 10 ⁸ ohms minimum	Pass (1.1 x 10 ¹² ohms)
After Soldering		5 x 10 ⁸ ohms minimum	Pass (9.8 x 10 ¹¹ ohms)
Moisture & Insulation Resistance Before Soldering–In Chamber	3.9.1	5 x 10 ⁸ ohms minimum	Pass (1.2 x 10 ¹⁰ ohms)
Before Soldering–Out of Chamber		5 x 10 ⁸ ohms minimum	Pass (8.4 x 10 ¹² ohms)
After Soldering–In Chamber		5 x 10 ⁸ ohms minimum	Pass (1.1 x 10 ¹⁰ ohms)
After Soldering–Out of Chamber		5 x 10 ⁸ ohms minimum	Pass (2.0 x 10 ¹³ ohms)
Electrochemical Migration	3.9.2	>2.0 x 10 ⁶ ohms, no dendritic growth	Pass (1.3 x 10 ¹² ohms)

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