






UVR-150 TU Red

UV CURABLE SOLDER MASK

-  **Screen Print Application**
-  **UV Touch Up for PSR-4000 HFX Satin Red**
-  **Red Satin Finish**
-  **Hard Surface Finish**
-  **Short Cycle Time**

PROCESSING PARAMETERS FOR UVR-150 TU RED

UVR-150 TU Red is a one-component, red solder mask for screen printing application or touch up to match PSR-4000 HFX Satin. This product has excellent printing characteristics, resistance to fluxes, and resistance subsequent processing. All Taiyo America products comply with the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the Restriction of the use of certain Hazardous Substances (RoHS) in electrical and electronic equipment.

UVR-150 TU GREEN	Color	Red
	Solids	100%
	Specific Gravity	1.5
	Viscosity	120-140 ps

MIXING **UVR-150 TU Red** 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-150 TU Red**. 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: Mechanized 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
- Printing Pressure: 60 – 100 psi

PROCESSING PARAMETERS FOR UVR-150 TU RED

UV CURE

UVR-150 TU RED 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-150 TU RED** 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-150 TU RED

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)

Taiyo America, Inc. (TAIYO) warrants its products to be free from defects in materials and workmanship for the specified warranty period (**UVR-150 TU Red Warranty period is 12 Months**) provided the customer has, at all times, stored the ink at a temperature of 68°F or less. TAIYO accepts no responsibility or liability for damages, whether direct, indirect, or consequential, resulting from failure in the performance of its products. If a TAIYO product is found to be defective in material or workmanship, its liability is limited to the purchase price of the product found to be defective. TAIYO MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. TAIYO'S obligation under this warranty shall not include any transportation charges or costs of installation or any liability for direct, indirect, or consequential damages or delay. If requested by TAIYO, products for which a warranty claim is made are to be returned transportation prepaid to TAIYO'S factory. Any improper use or any alteration of TAIYO'S product by the customer, as in TAIYO'S judgment affects the product materially and adversely, shall void this limited warranty.