

PSR-9000 FLX03G LDI *(UL Name: PSR-9000AD / CA-90AD)*

LIQUID PHOTOIMAGEABLE SOLDER MASK

- ③ **Designed for Flexible Printed Circuits on LDI equipment**
- ③ **Screen Print Application**
- ③ **Halogen-Free**
- ③ **Compatible with Lead-Free Processing**
- ③ **Fine Dam Resolution**
- ③ **RoHS Compliant**
- ③ **Excellent Resistance to ENIG, Immersion Tin and Immersion Silver**
- ③ **Green Glossy Finish**
- ③ **UL listed as VTM-0 on 2 mil Kapton**

PROCESSING PARAMETERS FOR PSR-9000 FLX03G LDI

PSR-9000 FLX03G LDI is a two-component, glossy green, alkaline developable LPI solder mask products for flood screen printing. **PSR-9000 FLX03G LDI** has been specifically designed for flexible printed circuit boards and is user friendly with wide processing latitude. **PSR-9000 FLX03G LDI** has very good resistance to ENIG, Immersion Tin and Immersion Silver. 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.

PSR-9000 FLX03G LDI COMPONENTS	PSR-9000 FLX03G LDI / CA-90 FLX03G LDI	
Mixing Ratio	74 parts	26 parts
Color	Green	White
<u>Mixed Properties</u>		
Solids	73%	
Viscosity	180ps	
Specific Gravity	1.14	

MIXING

PSR-9000 FLX03G LDI has a six month shelf life and is supplied in pre-measured containers with a mix ratio by weight of 74 parts **PSR-9000 FLX03G LDI** and 26 parts **CA-90 FLX03G LDI**. **PSR-9000 FLX03G LDI** can be mixed by hand with a mixing spatula for 10 – 15 minutes. Mixing can be done with a mechanical mixer at low speeds to minimize shear thinning for 10 – 15 minutes. Also, mixing can be done with a paint shaker for 10 – 15 minutes.

Pot life after mixing is 24 hours when stored in a dark place at < 25°C (77°F).

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 **PSR-9000 FLX03G LDI**. Hold time after cleaning the printed circuit board should be held to a minimum to reduce the oxidation of the copper surfaces.

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- SCREEN PRINTING** Method: Single Sided and Double Sided Screening
- Screen Mesh: 100-150
 - Screen Mesh Angle: 22.5° Bias
 - Screen Tension: 20 - 28 Newtons
 - Squeegee: 60 – 80 durometer
 - Squeegee Angle: 27 – 35°
 - Printing Mode: Flood / Print / Print
 - Flood Pressure: 20 – 30 psi
 - Printing Speed: 2.0 – 9.9 inches/sec
 - Printing Pressure: 70 – 100 psi
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TACK DRY CYCLE The Tack Dry step is required to remove solvent from the solder mask film and produce a firm dry surface. The optimum dwell time and oven temperature will depend on oven type, oven loading, air circulation, exhaust rate, and ramp times. Excessive tack dry times and temperature will result in difficulty developing solder mask from through holes and a reduction in photo speed. Insufficient tack dry will result in artwork marking and/or sticking. Typical tack dry conditions for **PSR-9000 FLX03G LDI** are as follows:

- Oven Temperature: 174 - 180°F (79 - 82°C)
 - For Single-Sided (Batch Oven)
 - 1st Side: Dwell Time: 15 - 20 minutes
 - 2nd Side: Dwell Time: 20 - 35 minutes
 - For Double-Sided (Conveyorized or Batch Oven)
 - Dwell Time: 35 - 55 minutes
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EXPOSURE **PSR-9000 FLX03G LDI** requires UV exposure to define solder mask dams and features. The spectral sensitivity of **PSR-9000 FLX03G LDI** is in the area of 355 - 365 nm. Below are guidelines for exposing **PSR-9000 FLX03G LDI**.

LDI Exposure Unit

- Exposure Unit: Orbotech 8k Series or above
- Stouffer Step 21: Clear 8 minimum (on metal)
- Energy: 100 mJ/cm² minimum
- Hold time prior to development: 10 minutes

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DEVELOPMENT	<p>PSR-9000 FLX03G LDI is developed in an aqueous sodium or potassium carbonate solution. Developing can be done in either a horizontal or vertical machine.</p> <ul style="list-style-type: none">• Solution: 1% by wt. Sodium Carbonate or 1.2% Potassium Carbonate• pH: 10.6 minimum• Temperature: 85 - 90°F (29 - 32°C)• Spray Pressure: 25 - 35 psi• Dwell Time in developing chamber: 60 - 90 seconds• Water rinse is needed to remove developer solution & dry
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FINAL CURE	<p>PSR-9000 FLX03G LDI requires a thermal cure to insure optimal final property performance. Thermal curing can be done in a batch oven or conveyORIZED oven.</p> <ul style="list-style-type: none">• Temperature: 302°F (150°C)• Time at Temperature: 60 minutes
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For Process Optimization please contact your local Taiyo America Representative

Taiyo America, Inc. (TAIYO) warrants its products to be free from defects in materials and workmanship for the specified warranty period (**PSR-9000 FLX03G LDI / CA-90 FLX03G LDI Warranty period is 6 Months**) provided the customer has, at all times, stored the ink in a dark place at a temperature of below 68°F (20°C). 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.

FINAL PROPERTIES FOR PSR-9000 FLX03G LDI

Item	Test Method	Result
Adhesion	TAIYO Internal Test Method Cross hatch/Tape peeling	100 / 100
Pencil hardness	TAIYO Internal Test Method No scratch on copper surface	3H
Solder heat resistance	Rosin flux 260°C / 5 sec. 1cycle Solder bath floating test	Passed
Solvent resistance	PMA-AC 20°C / 30min. Immersion, Cross hatch / Tape peeling	Passed
Acid resistance	10vol% H ₂ SO ₄ 20°C / 30min. Immersion, Cross hatch / Tape peeling	Passed
Alkaline resistance	10wt% NaOH 20°C / 30min. Immersion, Cross hatch / Tape peeling	Passed
Electroless Ni/Au	TAIYO Internal Test Method Ni 3µm; Au 0.03 µm; Tape peeling	Passed
Bendability	TAIYO Internal Test Method Kapton, 180deg. Bending	No Crack
Flame resistance	UL 94 VTM-0 Flammability Test Kapton, double side coating	Pass