PSR-800 AUS410
(UL suffix: PFR-800AC)

1. FEATURES
PSR-800 AUS410 is a Dry film type photo imageable solder mask especially developed for IC package with following features.

a) Excellent in electroless thick gold plating resistance
b) High resolution
c) Halogen free
d) Good PCT resistance

2. SPECIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>PSR-800 AUS410</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Green</td>
</tr>
<tr>
<td>Thickness</td>
<td>20um +/- 2um</td>
</tr>
<tr>
<td>Exposure energy</td>
<td>400 - 800mJ/cm² (Under Mylar film)</td>
</tr>
<tr>
<td></td>
<td>280 - 560mJ/cm² (On carrier film)</td>
</tr>
<tr>
<td>Shelf life</td>
<td>12 months from manufacturing date (Stored at -15deg.C or below)</td>
</tr>
</tbody>
</table>
3. PROCESS CONDITION

<table>
<thead>
<tr>
<th>Process</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWB</td>
<td>FR-4, 1.6mm</td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>Acid treatment - Buff scrubbing</td>
</tr>
</tbody>
</table>
| Lamination       | Vacuum laminator  
|                  | Temperature: 75deg.C  
|                  | Time: 60sec         
|                  | 70-85deg.C          
|                  | 40-90sec            |
| Exposure         | 400mJ/cm² (Under Mylar film)  
|                  | 280mJ/cm² (On carrier film)  
|                  | 400-800mJ/cm²        
|                  | 280-560mJ/cm²        |
| Development      | Aqueous alkaline solution: 1wt% Na₂CO₃  
|                  | Temperature of developer: 30deg.C  
|                  | Spray pressure: 0.2MPa  
|                  | Developing time: 120sec  
|                  | 0.15-0.25MPa         
|                  | 90-150sec            |
| Water rinse      | Temperature of rinsing water: 25deg.C  
|                  | Spray pressure: 0.1MPa  
|                  | Rinsing time: 45sec  
|                  | Below 30deg.C        
|                  | 0.1-0.15MPa          
|                  | 60-75sec             |
| Post cure        | 160deg.C / 60min (Hot air convection oven)  
|                  | 45-90min             |
| UV Bump          | 1000mJ/cm² (High pressure Mercury Lamp)  
|                  | 500-1000mJ/cm²       |

*In case of applying marking ink, solder mask should be cured at 150deg.C for 30 minutes, then marking ink should be cured at 140deg.C for 20 minutes x 2 cycles. In case no marking ink is applied, solder mask should be cured at 150deg.C for 60 minutes.

4. ATTENTION IN PROCESS:

- As to the operation environment. It is desirable to deal with the ink under the yellow lamps in the clean room. Please avoid using it under white fluorescent lamps or sunlight (directly or indirectly).

- Open up the package when the product becomes ambient temperature not to cause dewing.

- Lamination under high temperature causes thin coating thickness on track and it tends to be lower resistance in solder heat, chemical and Ni/Au plating.
  Lamination under low temperature may affect conformability of the resist film to the tracks.

- Laminating conditions are variable depending on the types of machine, the size of board, etc.
  Set an optimum condition by your own.

- Please set the exposing energy after the confirmation test of under-cut, surface gloss, back side exposure and so on because it is influenced according to the material of the board, the thickness of ink, etc.
Regarding the developing process, please control the developer density, the temperature, the spray pressure and the developer time, etc. The inadequacy of control causes the degradation of the developability and the increase of under-cut.

Please set the post cure conditions considering the curing time of the marking ink. Insufficient curing or over curing may cause the degradation of properties.

In order to ensure ENIG resistance, please set up appropriate post cure conditions with considering final baking of marking ink. ENIG resistance could be deteriorated due to over baking.

5. CHARACTERISTIC

(1) PHOTORESPONSIVITY

<table>
<thead>
<tr>
<th>Item</th>
<th>Thickness</th>
<th>Energy</th>
<th>Developing time</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity Kodak No.2</td>
<td>20 +/- 2um</td>
<td>400mJ/cm² (280mJ/cm²)</td>
<td>120 sec.</td>
<td>3 step</td>
</tr>
<tr>
<td>(Step density tablet)</td>
<td></td>
<td>600mJ/cm² (420mJ/cm²)</td>
<td></td>
<td>4 step</td>
</tr>
<tr>
<td></td>
<td></td>
<td>800mJ/cm² (560mJ/cm²)</td>
<td></td>
<td>5 step</td>
</tr>
</tbody>
</table>

The exposure energy is measured below Mylar film (on solder mask) by ORC HMW-680, 7Kw, metal halide lump.
## TECHNICAL DATA SHEET

### (2) END PROPERTIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Test method</th>
<th>Test result</th>
</tr>
</thead>
</table>
| Adhesion                    | TAIYO Internal Test Method  
Cross-cut tape stripping test                                                   | 100 / 100   |
| Pencil hardness             | TAIYO Internal Test Method  
On copper foil, no Cu exposure                                                   | 6H          |
| Solder heat resistance      | Solder float test :  
Rosin flux, 260deg.C/10sec (3cycle)                                           | Passed      |
| Solvent resistance          | PGM-AC dipping, temp 20deg.C/30min, Scotch tape peeling test                  | Passed      |
| Acid resistance             | 10vol % H₂SO₄, temp 20deg.C/30min, Scotch tape peeling test                  | Passed      |
| Alkaline resistance         | 10wt% NaOH, temp 20deg.C/30min, Scotch tape peeling test                      | Passed      |
| Insulation resistance       | IPC comb type B pattern  
Conditioned: DC100V  
Measurement: Room temp. DC500V 1-minute value                                  | 3.6 x 10¹³ Ohms |
| Dielectric constant         | TAIYO Internal Test Method, value at 1MHz  
Measured: at room temperature                                                   | 4.0         |
| Dissipation factor          | TAIYO Internal Test Method, value at 1MHz  
Measured: at room temperature                                                   | 0.025       |
| Electrolytic Ni/Au Plating resistance | TAIYO Internal Test Method  
Ni: 5um / Au: 1um                                                             | Passed      |
| Electroless Ni/Au Plating resistance | TAIYO Internal Test Method  
Ni: 3um / Au: 0.03um                                                          | Passed      |
| Water absorption            | Immersion in DI water, 20deg.C, 24hrs                                        | 1.0%        |
| PCT resistance              | TAIYO Internal Test Method  
121deg.C 100%Rh(Full) 50hrs                                                   | Passed      |
| Tg/CTE                      | TAIYO Internal Test Method  
TMA method                                                                     | Tg : 105deg.C  
Alpha1 : 58ppm  
Alpha2 : 153ppm                                                             |

### 6. ATTENTION

*All test data shown above on this technical data sheet are based on our laboratory test result and only for reference, not guarantee the same on your process.*

*All chemicals used in this product might have unknown toxicity. Please handle with your most care referring to the MSDS for use.*

*No intentional use of RoHS 2.0 subjected 10 substances (Lead, Cadmium, Mercury, Hexavalent-chromium, PBBs, PBDEs, DEHP, DBP, BBP and DIBP) for this product.*