DATA SHEET

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PSR-2000 KX700HF / CA-25 KX50

1. FEATURES :

PSR-2000 KX700HF is a liquid photo imageable solder resist (alkaline development type), used for screen printing. It is also excellent in heat resistance.

2. SPECIFICATION :

Main agent	PSR-2000 KX700HF
Hardener	CA-25 KX50
Color*	Green
Mixing ratio	Main agent : 85 / Hardener : 15 (By weight)
Viscosity	160 ±15 dPa・s (R Mode Viscometer, 5min^{-1} / 25℃)
Tack free window*	80℃ / 50 min (Maximum)
Specific gravity	1.37
Exposure energy*	300 ~ 500 mJ/cm^2 (on the solder mask)
Pot life*	24 hours (stored in dark place at less than 25℃)
Shelf life**	6 months (stored in dark place at than 25℃)

* : After mixing

** : After manufacturing

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3. PROCESS CONDITION

PROCESS		RANGE
PWB	FR – 4 , 1.6 mm	
Pre-treatment	Acid treatment → brushing	
Printing	100 mesh-count	90 ~ 125 mesh
Hold time	10 min	10 ~ 20 min
Tack free	➢ One side each exposure 1 st printing : 80℃ / 20 min 2nd printing : 80℃ / 25 min ➢ Both sides simultaneous exposure 80℃ / 30 min	80℃ / 15~20 min 80℃ / 20~30 min 80℃ / 25~35 min
Exposure	400 mJ/cm^2 (on the solder mask)	300 ~ 500 mJ/cm^2
Hold time	10 min	10 ~ 20 min
Development	Aqueous alkaline solution : 1 wt% Na_2CO_3 Temperature of developer : 30℃ Spray pressure : 0.196 MPa Developing time : 60 sec	0.2 ~ 0.25 MPa 60 ~ 90 sec
Post cure	150℃ / 60 min (Hot air convection oven)	

4. ATTENTION ON EACH 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).
- The adequate thickness is 10 ~ 20 μm (on the copper after curing).
  Thin coating possibly reduces its solder heat resistance. On the other hand, thick coating possibly causes the under-cut or low tackiness.
- Please set the pre-cure conditions and tack free window after the confirmation test because they are influenced according to the type of the drying machine and the quantity of the board to be dried.
- 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.

5. CHARACTERISTIC

(1) TACK FREE TOLERANCE WINDOW :

Drying time (80℃ / min)	30	40	50	60
Developability	○	○	○	○△

(2) PHOTO SENSITIVITY :

Item	Thickness	Energy	Developing time	Sensitivity
Sensitivity Kodak No.2 (Step density tablet)	22 μm	150 mJ/cm^2	60 sec.	6 steps
		200 mJ/cm^2		8 steps
		300 mJ/cm^2		9 steps
Resolution (Between QFP)	40 ±2 μm	300 mJ/cm^2	60 sec.	50 μm
		400 mJ/cm^2		50 μm
		500 mJ/cm^2		50 μm

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(3) PROPERTIES :

Item	Test method	Test result
Adhesion	GIF-007AA Standard Cross-cut tape stripping test	100 / 100
Pencil hardness	GIF-009AA Standard On copper foil, no Cu exposure	6H (min)
Solder heat resistance	Solder float test : Rosin flux, 260℃ / 30 sec (1 cycle)	Pass
Solvent resistance	PMA dipping, room temp./ 30 min Scotch tape stripping	Pass
Acid resistance	10 vol % H_2SO_4, room temp./ 30 min Scotch tape stripping	Pass
Alkaline resistance	10 wt% NaOH, room temp./ 30 min Scotch tape stripping	Pass
Electrolytic gold plat	Test by TAIYO Lab. Ni 5μm Au 1μm	Passed
Electroless gold plat	Test by TAIYO Lab. Ni 3μm Au 0.03μm	Passed
Insulation resistance	IPC comb type B pattern Humidification : 25~65℃ cycle 90% RH DC100V loading for 7 days Measurement : After the above treatment,loading DC500V for 1 minute at room temperature	Initial : $2.4 \times 10^{13}\Omega$ After : $3.1 \times 10^{11}\Omega$
Dielectric constant	JIS C6481 1 MHz Humidification : 25~65℃ cycle 90% RH for 7 days	Initial : 4.3 After : 4.6
Halogen contents	Calculated	620 ppm

Note : The above-mentioned test data is just for reference, not to guarantee the result.