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Dual-component, alkaline developable
Liquid photo imageable solder mask

PSR-2000 CE887D/ CA-25 CE97

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Data Sheet No.:DAS-035120/037100-00

1. FEATURES:

PSR-2000 CE887D / CA-25 CE97 is a liquid photo imageable solder resist ink (alkaline development type) used for screen printing.

a) Excellent heat resistance.

2. SPECIFICATINS:

Product name	Main agent	：PSR-2000 CE887D
	Hardener	：CA-25 CE97
UL Suffix	Main agent	：PSR-2000BV
	Hardener	：CA-25BV
Color	Main agent	：Green
	Hardener	：White
Mixing ratio	Main agent：Hardener = 80：20 (by weight.)	
Viscosity	150±20dPa.s (Cone-plate viscometer 5min^{-1} /25℃, After mixing)	
Solid content	80.0±3wt% (After mixing)	
Specific gravity	1.4±0.1 (After mixing)	
Tack dry window	80℃×50min(Max)	
Exposure energy	400-600 mJ/cm²(Under Mylar film)	
	280-420mJ/cm²(On solder mask)	
Post cure	150℃×60min	
Pot life	24 Hrs. (stored at dark & lustration place, 25℃ or below)	

3. PROCESS CONDITIONS:

Process	Conditions	Tolerance
Test panels:	FR-4 (thickness 1.6mm)	-
Pretreatment:	Acid rinse → Buff scrubbing → Water rinse → Dry	-
Dilution volume:	100mesh	[90-125mesh]
Hold time:	10 min	[10-20 min]
Pre-cure:	Single side Coating 1st:80℃ 25-35 min (Hot air convection oven) Double side Coating 1st:80℃ 15-20 min (Hot air convection oven) 2nd:80℃ 20-30 min (Hot air convection oven)	[80℃ 50 min] （Max）
Exposure:	500mJ/cm^2 (Under Mylar film) 350mJ/cm^2 (On solder mask) Halogen lamp 7kW (ORC HMW-680GW)	[400-600mJ/cm^2] [280-420 mJ/cm^2]
Hold time:	10 min	[10-20 min]
Development:	Solution: 1wt% Na_2CO_3 Temp.: 30℃ Spray pressure: 0.2Mpa Time: 60 sec	- - [0.2-0.25Mpa] [60-90sec]
Water rinse:	Temp.: 25℃ Spray pressure: 0.1Mpa Time: 45 sec	[20-30℃] [0.1-0.15Mpa] [45-60 sec]
Post cure:	150℃ 60 min (Hot air convection oven)	[150℃ 30-90 min]

*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/20min for each side of PCB.

4. ATTENTION ON PROCESS:

a) 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).

b) The adequate thickness is 10-20 um (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.

c) Please set the pre-cure conditions and tack dry 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.

d) 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.

e) 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.

f) 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. INK PROPERTIES:

5.1 TACK DRY WINDOWS:

Drying time (80℃)	30 min	40 min	50 min	60 min
Developability	OK	OK	OK	NG

5.2 PHOTO SENSITIVITY

Item	Thickness um	Energy mJ/cm^2 (under Mylar)	mJ/cm^2 (on S/M)	Result
Sensitivity Kodak No.2	22±2	400	280	6
		500	350	7
		600	420	8
Resolution Between QFP pads	40±2	400	280	50µm
		500	350	50µm
		600	420	50µm

(1 min development)

6. PROPERTIES:

Item	Teat Method	Result
Adhesion	Taiyo internal method Cross hatch peeling	100 / 100
Pencil hardness	Taiyo internal method No scratch on copper	6H
Solder heat resistance	Rosin flux 260℃/30sec，1cycles	Pass
Acid resistance	10vol% H_2SO_4 20℃/20min. (Dip) Tape peeling test	Pass
Alkaline resistance	10wt% NaOH 20℃/20min. (Dip) Tape peeling test	Pass
Solvent resistance	PGM-Ac 20℃/30min. (Dip) Tape peeling test	Pass
Insulation resistance	IPC comb type (B pattern) Humidification:25-65℃/90%RH/ DC100V 7Days Measurement:DC500V 1min.	Initial $1.4\times10^{13}\Omega$ Conditioned $1.5\times10^{12}\Omega$
Dielectric constant	Taiyo internal method Values at 1MHz Humidification:25-65℃/90%RH 7Days	Initial 4.6 Conditioned 4.9
Dissipation factor	Taiyo internal method Values at 1MHz Cycling for 7days Humidification:25-65℃/90%RH	Initial 0.026 Conditioned 0.035

Note: The above-mentioned data is based on lab test @TAIYO INK (SUZHOU), which is only for your reference, because every facility may provide different result.

7. Attention:

a) Please operate in accordance with MSDS.

b) Operate in area supported by local exhaust or general room ventilation to avoid build-up of high concentration of solvent vapors.

c) Use gloves and apron during operation. Wash with soap and water if ink is attached to the skin.

d) Wash hands and face with soap and water. Rinse out the mouth before eating or smoking.