TAIYO INK MFG. CO., LTD.

900 Oazahirasawa,Ranzan-machi,Hiki-gun,Saitama,355-0215 Japan
TEL:81-493-61-2724 FAX:81-493-61-2824
http://www.taiyoink.co.jp

FLEXFINER-30SA

(UL suffix: FLEXFINER-AA)

1. FEATURES

FLEXFINER-30SA is a photo imageable cover-layer film especially developed for FPC substrate with following features.

a) Excellent in electroless thick gold plating resistance
b) High heat resistance
c) Halogen free
d) Excellent bendability

2. SPECIFICATION

Product name	FLEXFINER-30SA
Color	Amber
Thickness	30um +/- 2um
Exposure energy	150 - 250mJ/cm^2 (On carrier film)
Shelf life	12 months from shipping date (Stored at -15deg.C or below)

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3. PROCESS CONDITION

Process		Range
FPC substrate	Espanex M, Cu/PI= 18um/25um	
Pre-treatment	Acid treatment	
Lamination	Vacuum laminator Temperature: 70deg.C Time: 90sec	60-90deg.C 60-110sec
Exposure	200mJ/cm^2 (On carrier film)	150-250mJ/cm^2
PEB (Post exposure bake)	90deg.C / 35min (Hot air convection oven)	25-55min
Carrier film stripping		
Development	Aqueous alkaline solution : 1wt% Na_2CO_3 Temperature of developer : 30deg.C Spray pressure : 0.1MPa Developing time : 60sec	0.10-0.15MPa 40-80sec
Water rinse	Temperature of rinsing water : 25deg.C Spray pressure : 0.1MPa Rinsing time : 45sec	Below 30deg.C 0.1-0.15MPa 30-120sec
Post cure	150deg.C / 60min (Hot air convection oven)	45-90min

*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.

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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 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) PHOTOSENSITIVITY

Item	Thickness	Energy	PEB	Developing time	Sensitivity
Sensitivity Kodak No.2 (Step density tablet)	30 +/- 2um	150mJ/cm^2	90deg.C 35min	60 sec.	4 step
		200mJ/cm^2			5 step
		250mJ/cm^2			6 step

The exposure energy is measured on carrier film by ORC EXP-2960, high mercury short arc lamp.

(2) END PROPERTIES

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Item	Test method	Test result
Adhesion	TAIYO Internal Test Method Cross-cut tape stripping test	100 / 100
Pencil hardness	TAIYO Internal Test Method On copper foil, no Cu exposure	4H
Solder heat resistance	Solder float test : Rosin flux, 260deg.C/10sec	Passed
Solvent resistance	PGM-AC dipping, temp 20deg.C/30min, Scotch tape peeling test	Passed
Acid resistance	10vol % H_2SO_4, temp 20deg.C/30min, Scotch tape peeling test	Passed
Alkaline resistance	10wt% NaOH, temp 20deg.C/30min, Scotch tape peeling test	Passed
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
Bendability	TAIYO Internal Test Method Folding, Load 500g	Above 20 times

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 2.0subjected 10 substances (Lead, Cadmium, Mercury, Hexavalent-chromium, PBBs, PBDEs, DEHP, DBP, BBP and DIBP) for this product.