Technical data

1.0version

LONGLITE®DRY FILM PHOTO RESIST

FF-9040S

Changchun Chemical (Jiangsu) Co., Ltd.

Changchun Road, Yanjiang Industrial Zone, Changshu Economic Development Zone, Jiangsu Province

Chang Chun Chemical (Jiangsu) Co., Ltd.
Changchun Rd.,Riverside Industrial Park,
Changshu Economic Development Zone,
Jiangsu 215537, china
TEL:86-512-5264-8000 (Rep)
FAX:86-512-5264-5556
WEB:www.ccp.com.tw

LONGLITE®Dry Film Photo Resist FF-9040S It is a negative type, water-soluble dry film photoresist.

With good resolution and adhesion, it is suitable for fine line acid etching,Tenting, copper electroplating and other printed circuit board processes.

characteristic:

1.Has excellent resolution.

2.Has excellent adhesion and covering power.

3.It has excellent chemical resistance and electroplating resistance.

4.The membrane is flexible,TentingExcellent properties.

5.Very low pollution to the plating solution.

6.The color contrast is obvious after exposure.

Specification:

Type	FF-9040S
Resistthickness	38μm (1.5 mil)
Standard width	0.125 inch
length	500ft / roll

store:

It is recommended to place it horizontally in a dry refrigerator. Storage environment conditions: temperature5~20℃, relative humidity50±10%.

Safety rules for use:

1.existUV-freeWhen not in use, it should be covered with a light-proof cloth and stored horizontally.

2.Odors will be generated during film pressing, so attention should be paid to the exhaust of the film pressing room.

3.Skin contact with the photoresist layer may cause irritation, so avoid direct contact. Wash your hands with soap after use. If irritation persists, seek medical attention.

LONGLITE®It is a registered trademark of Changchun Company.

LONGLITE®Dry Film Photo ResistChangchun Company and Tokyo Ohka Industry Co., Ltd.Tokyo Ohka Kogyo Co., Ltd.)Technical cooperation production.

Test items:

1. Imaging time,Break Point
2. Reproducibility under different exposure energies - sensitivity, resolution (line spacing), adhesion (line width), dry film line width changes
3. Stripping characteristics
4. Hair color concentration
5. Tentingcharacteristic

Test Conditions:

1.Substrate: 1.6 mm D/S (Copper thickness35µm)

2.Pre-treatment: Oscillation Buffering Polish (3M #320 # 500)

3.Preheat: Batch type oven, 80°C,10 min Roller (The substrate surface temperature before lamination is about50°C)

4.Lamination: temperature:100°C
Roller pressure:4.0 kg/cm_2
speed:2.0 M/min

5. Hold time： After lamination15 min

6.Exposure: UVE-M500 5KW Ultra High Pressure Mercury Lamp

7. Hold time： After exposure15 min

8.Imaging: Developer:1% Na_2CO_3aq
temperature:29±1°C
Spray pressure:1.2～1.4kg/cm_2
BP:50%

9.Stripping film: Stripping solution:2.0%,3.0%,4.0% NaOH
temperature:40°C,50°C,60°C Spray pressure:
Immersion

1.Imaging time,Break Point

Break Point	23sec
Imaging time (2 BP)	46sec

2.Reproducibility at different exposure energies:

project		Sensitivity	Resolution (line spacing)	Adhesion (line width)	Dry film line width variation
unit		(Step)	(µm)	(µm)	(µm)
Exposure (mJ/cm$_2$)	20	4	50	60	- 1
	30	5	50	40	0
	40	6	50	40	1
	50	7	50	30	3
	60	7.5	60	30	5
	70	8	60	30	7
	80	8.25	60	30	9
	90	8.5	80	30	11
	100	9	80	30	13

Remark:

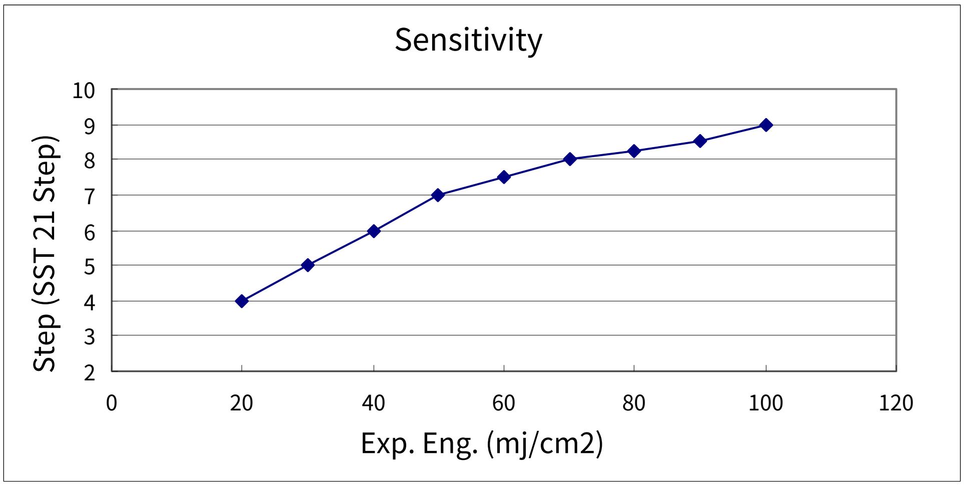
a. Data for reference

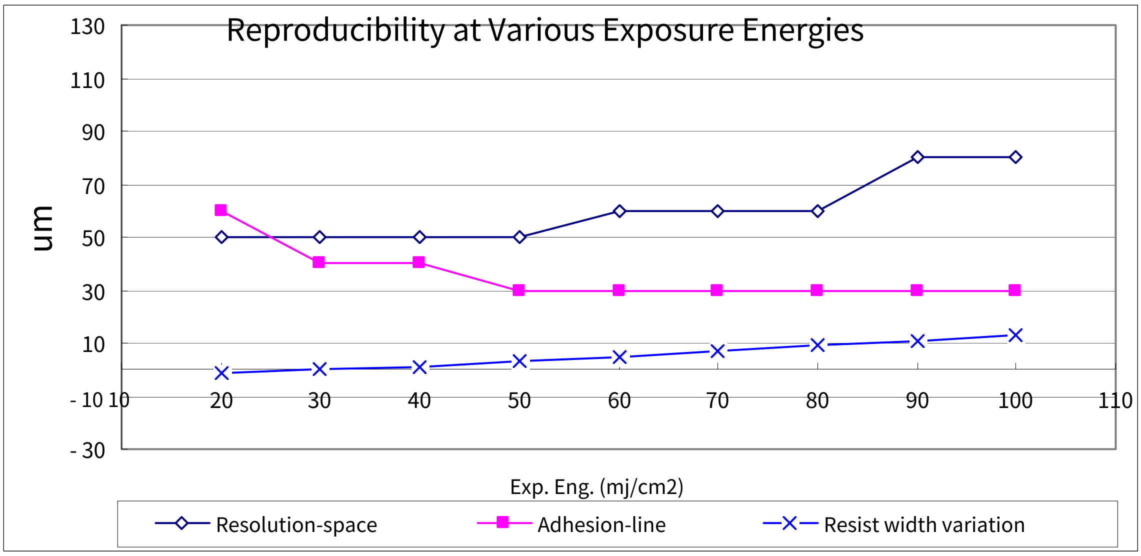
b.Sensitivity:Stouffer 21Segment exposure table (Stouffer 21 steps sensitivity guide)Place directly on dry film, record the remainingstep.

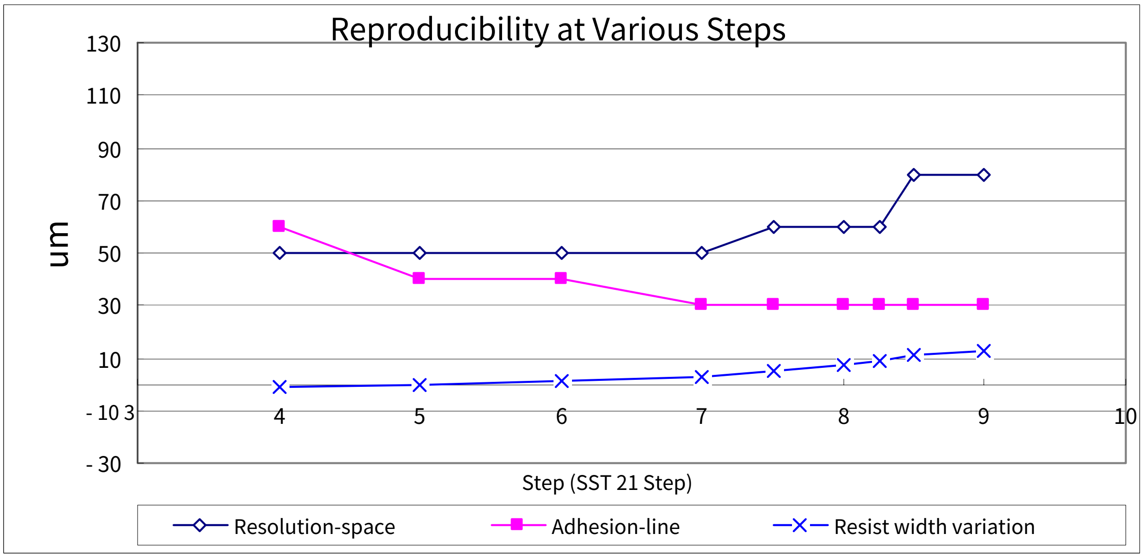
c.Resolution: Test FilmCCP Pattern-1 (L/S=2/1),LFont line,20~200µm.

d.Adhesion: Test filmCCP Pattern-1 (L/S=1/2),LFont line,20~200µm.

e.Dry film line width change: Calculate the difference between the line width of the dry film after development and the line width of the test film. Test film:L/S = 100/200µm.







3.Stripping characteristics

Stripping solution temperature Stripping solution concentration	40°C		50°C		60°C	
	Stripping time (sec)	Peel sheet shape	Stripping time (sec)	Peel sheet shape	Stripping time (sec)	Peel sheet shape
2%	49-54	Fragments	39-44	Fragments	32-34	Fragments
3%	41-48	Flakes with broken mouth	36-40	Fragments	30-33	Fragments
4%	38-49	Whole piece	33-38	Flakes with broken mouth	25-29	Flakes with broken mouth

4.Hair color concentration

Before exposure	0.07
After exposure (8 Step)	0.37

5.Tentingcharacteristic

strength(g)	349
time(sec)	3.50

Remark:

a. Data for reference

b.Exposure:8 Step

c. Gauge：ϕ2mm.

d. Speed:10mm/min.

e. Board：ϕ6mm, thickness 1.6mm.

Recommended operating conditions:

Surface treatment:

Type: Chemical micro-etching or grinding

Water break test: at least15~30 sec (upright)

If there is still water on the board surface, do not blow dry it directly with hot air.

Recommended surface roughness:R_a=0.2~0.4μm,R_z=1.5~2.5μm.

Lamination:

Film application temperature: 55~65°C

Film pressure: 2~5 kg/cm$_2$

Film application time: 1.5~2 sec

Board temperature: 40~60°C

Board temperature: 45~65°C

Roller temperature:110±10°C

Roller pressure:3~5 kg/cm$_2$

speed: 1.0~3.0 m/min

Holding time1:15 min~24 hr (23±2°C,50±10% RH)

If the board temperature exceeds70°C, the dry film on the plated through hole may become thinner. Please follow the instructions in the laminator manual when adjusting the roller temperature and pressure. After lamination, the substrate should be placed upright to cool to room temperature.

If the substrate after lamination is yellowUV-freePlace the light source over6 hr, be sure to cover the substrate with opaque cloth.

exposure:

Step: 6~9 step (SST 21 Step)

Holding time2: 15 min~24 hr (23±2°C,50±10% RH)

Holding time1andHolding time2The total should be less than2sky.

Imaging:

Developer: $0.7\sim1.0$ wt% Na_2CO_3
temperature: 26~30°C
Spray pressure: 1.2~2.0 kg/cm$_2$
Image point: 1/2~2/3

Recommended washing temperature15-25°C, water washing spray pressure1.2-2.0 kg/cm$_2$
Adjust the flow rate of the water washing tank to control the first water washing tank to maintainpH 8Dry film load: less than10g/L.

Etching:

Type：Cupric chloride or ferric chloride acid etching solution

Stripping film:

Stripping fluid: 3.5±0.5 wt% NaOH or KOH
temperature: 50～55°C
Spray pressure: 1.5~3.0 kg/cm$_2$
Stripping point: 1/2~2/3

Dry film loading is less than20g/L.

It is recommended that the water washing spray pressure is greater than1.0kg/cm$_2$.