台灣永光化學低溫製程用絕緣與保護層光阻

EOC 300(L)

研發二部

2017/07/28

Electronic Chemicals
電化事業處

Everlight Chemical

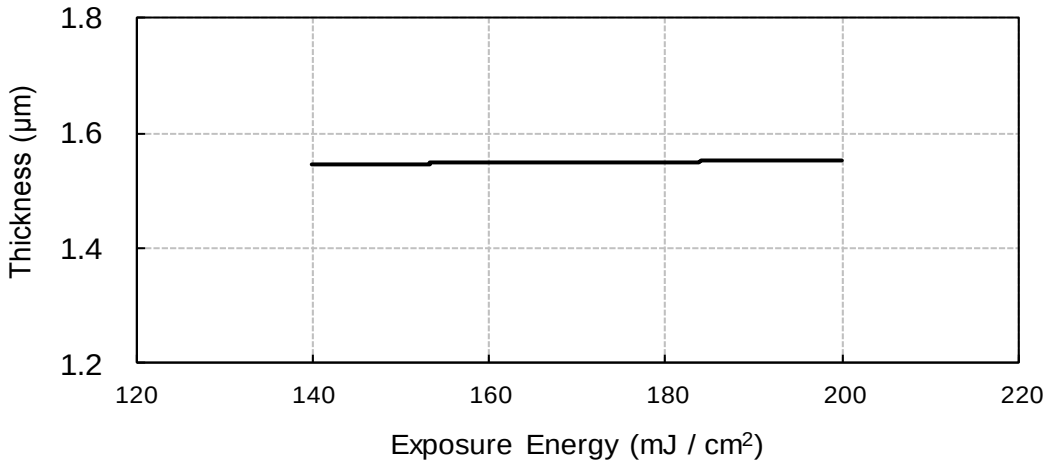
Properties

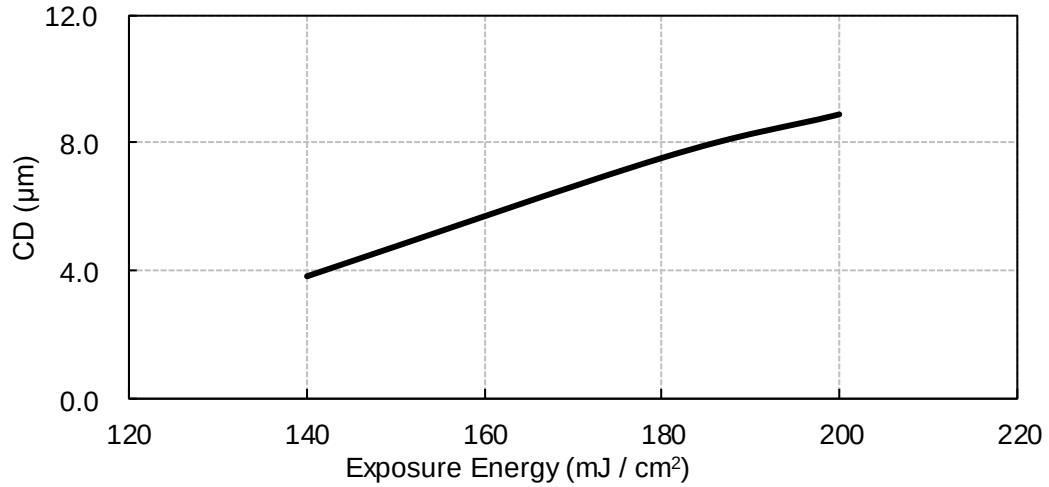
Characteristic	Properties
Film thickness	1.0 ~ 2.3 μm
Surface hardness	4H (weight : 750 g)
Viscosity	2.90 cP
Transmittance value	>95 % (400 nm)
Surface resistance	$>10^{14}$

Recipe

Target thickness	1.0 ~ 2.3 μm
Pre-bake (hot plate)	90 ℃ × 5.0 min.
Exposure*	Broadband, gap = 200 μm, I-line：140 mJ / cm^2 (Intensity = 40 mW / cm^2)
Development	60 sec. (spray), 23 ℃, TMAH 2 .38 wt.%
Rinse	Running DI water, 30 sec.
Post-bake	140 ℃ × 30 min. (oven)

Exposure Window





Electronic Chemicals
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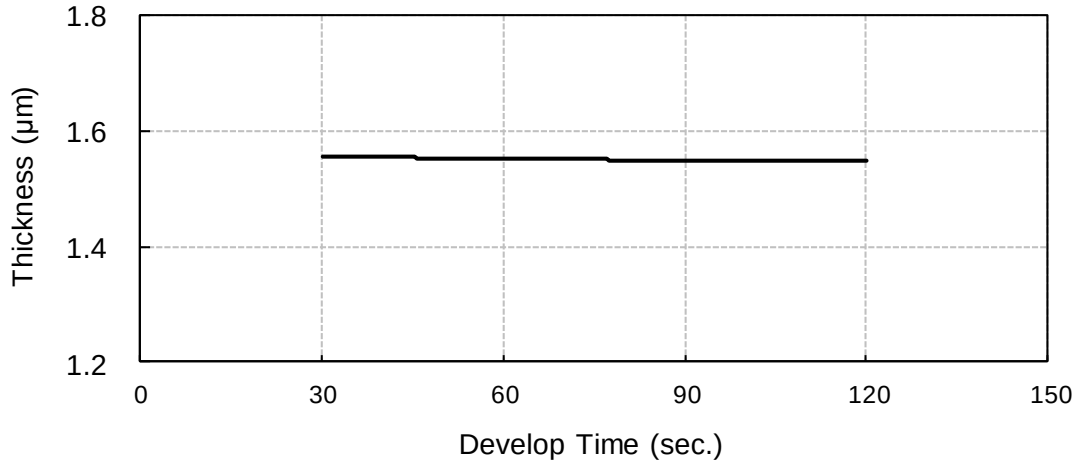
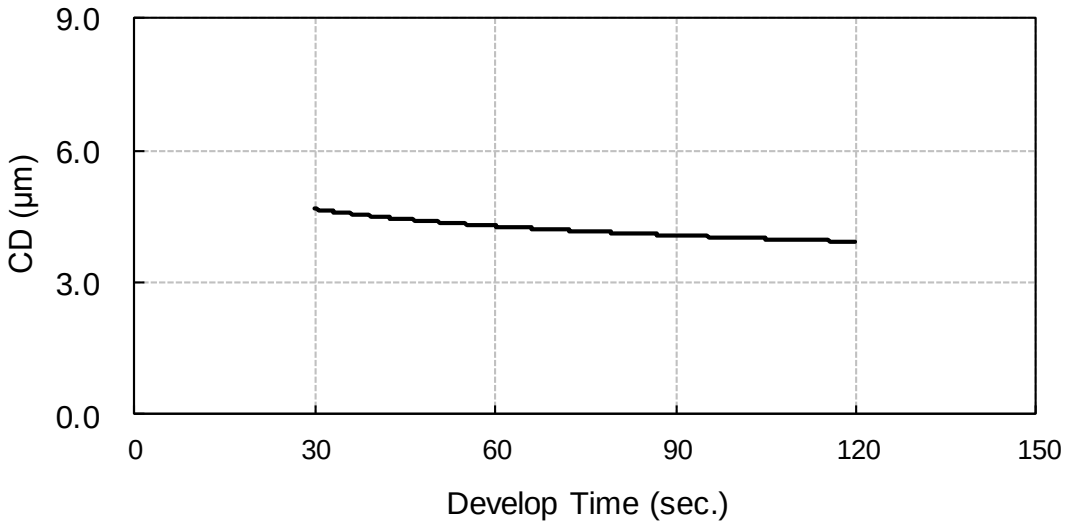
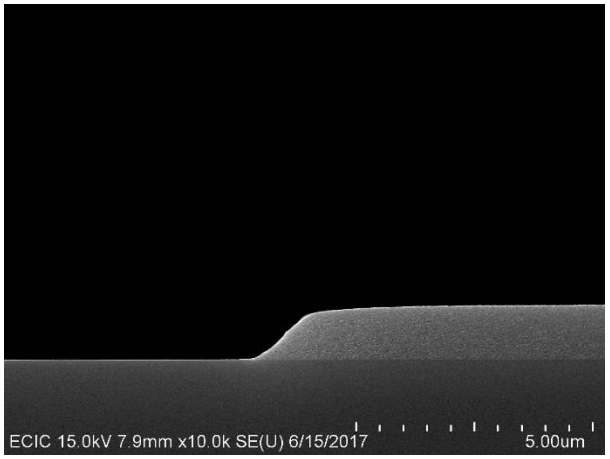
Development Window

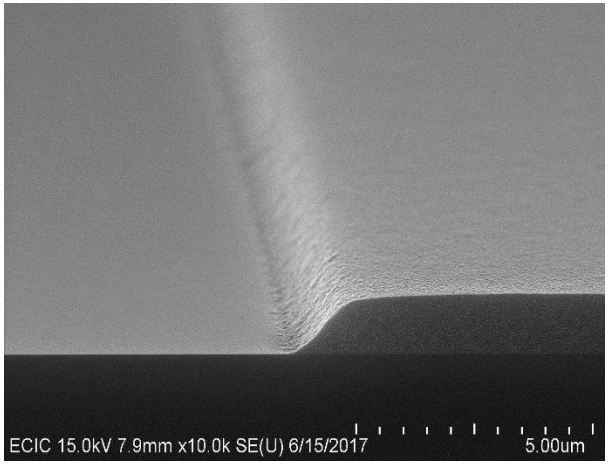




SEM



Taper angle (≒42°)



pattern

Thickness : 1.0 μm

Pre-bake : vacuum, 90 ℃ × 5.0 min. (hot plate)

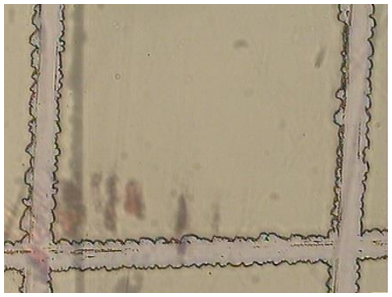
Exposure : 140 mJ / cm^2 (I-line)

Development : 23 ℃, TMAH 2.38 %, 60 sec. (spray)

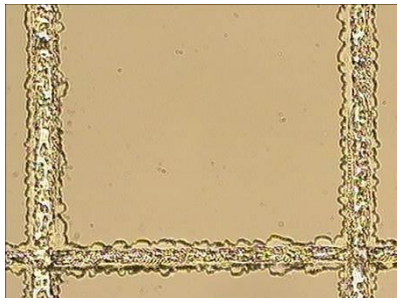
Post-bake : 140 ℃ × 30 min. (oven)

Adhesion on Various Substrates

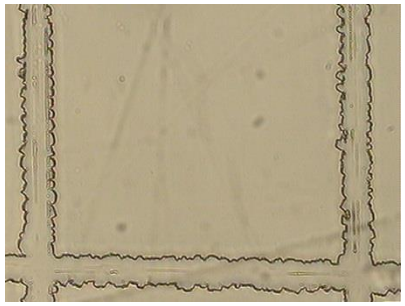
ITO	Mo-Al-Mo	Corning EAGLE XG
5B	5B	5B



ITO



Mo-Al-Mo



Corning

EAGLE XG

Process : Coating → Pre-bake → Exposure → Development → Post-bake →

→ Cross-Cut Tester and taped.

Moisture Resistance Test

	ITO	Mo-Al-Mo	Corning EAGLE XG
Ultrasonic test	5B	5B	5B
H/H, H/T Test	testing	testing	testing

1. Process : Coating → Pre-bake → Exposure → Development → Post-bake → Test → Cross-Cut Tester and taped.
2. Condition :

   Ultrasonic test : 25 ℃, 20 min.

   H/H, H/T test : 85 ℃, 85 %

Chemical Resistance Test

	ITO	Mo-Al-Mo	Corning EAGLE XG
IPA	5B	5B	5B
TMAH 2.38 %	5B	5B	5B
Acetone	5B	5B	5B
NMP	5B	5B	5B

1. Process : Coating → Pre-bake → Exposure → Development → Post-bake → Test → Cross-Cut Tester and taped.
2. Condition :

   IPA : 25 ℃, 3 min.

   TMAH 2.38 % : 25 ℃, 3 min.

   Acetone : 25 ℃, 3 min.

   NMP: 25 ℃, 3 min.

Cycle Test

Cycle test	ITO	Mo-Al-Mo	Corning EAGLE XG
Type 1	5B	5B	5B
Type 2	5B	5B	5B
Type 3	5B	5B	5B
Type 4	5B	5B	5B

1. Process : Coating → Pre-bake → Exposure → Development → Post-bake → Test → Cross-Cut Tester and taped.

2. Condition :

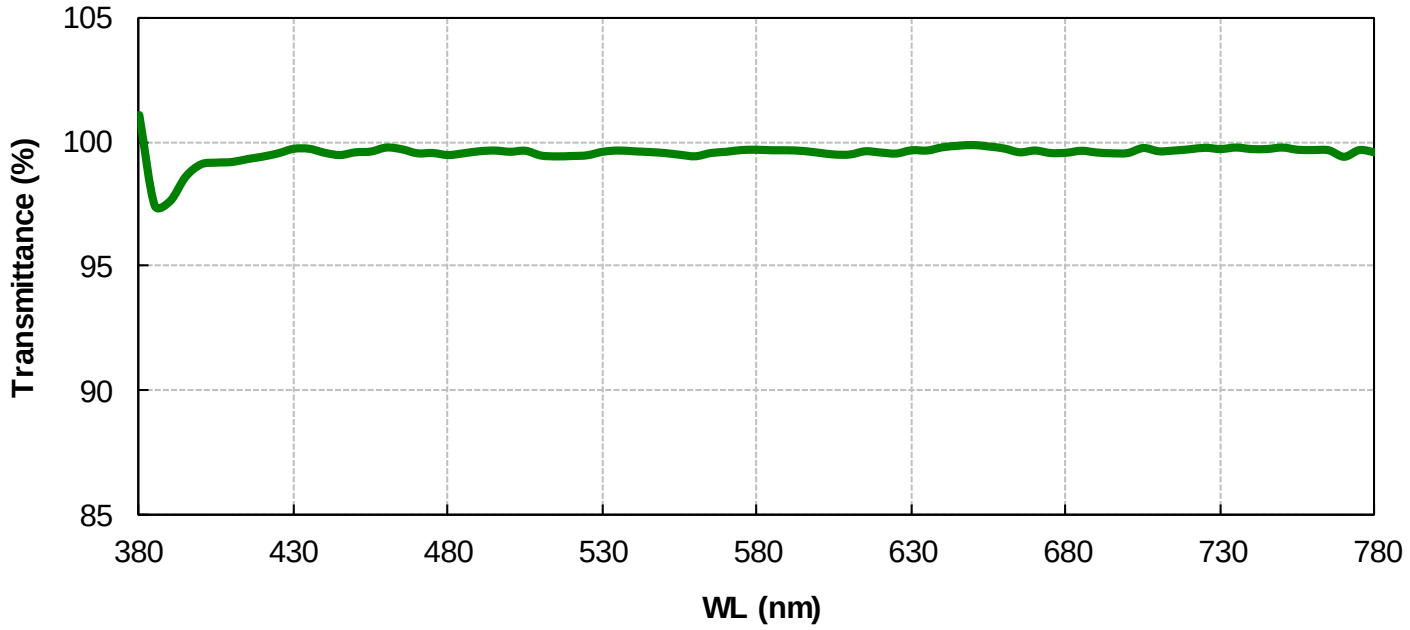
Type 1. Aqua regia, 40 ℃, 160 sec. → N-300, 60 ℃, 135 sec.

Type 2. Al acid, 40 ℃, 160 sec. → N-300, 60 ℃, 135 sec.

Type 3. 3.5 % oxalic acid, 40 ℃, 160 sec. → N-300, 60 ℃, 135 sec.

Type 4. Aqua regia, 40 ℃, 160 sec. → N-300, 60 ℃, 135 sec.
→ Al acid, 40 ℃, 160 sec. → N-300, 60 ℃, 135 sec.

Transmittance Spectrum



* Thickness at 1.5 μm