

INDUSTRIAL STRENGTH... Start Your Application From YOURITECH

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EMC tests

on-site service

Optical Bonding

In-house Manufacturing

Cover glass

System solutions

OEM Solutions

Custom Display

Production
Custom designs
Installation

Mechanical design



Effect of post-lamination UV treatment for G 6.2 PSA

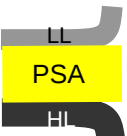
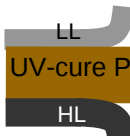
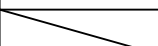
● Effect

1. Prevention of Bubbles
2. Improvement of CG ink gap absorption ability
3. Prevention of LCM-mura

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◆“CLEARFIT” technical spec comparison

CLEARFIT		【G3.0】	【G6.2】		Condition
		(present)	Anti Bubbles & Mura		
Layer structure					PSA Thickness : 175 μ m
UV irradiation			0J/cm ²	2000mJ/cm ² ※	Metal halide lamp
180° Peel force (N/cm)		5	5	4	Test rate:60mm/min vs. soda lime glass
G' (Pa)	20℃	2 × 10 ⁵	9 × 10 ⁴	1 × 10 ⁵	Shear storage modulus (1Hz)
	80℃	3 × 10 ⁴	1 × 10 ⁴	2 × 10 ⁴	
Shear strength		550	460	420	N/25mm□
Optical property	Tt (%)	90	90	90	ISO 13468-1
	Haze(%)	0.3	0.3	0.3	ISO 14782

※ Recommended conditions

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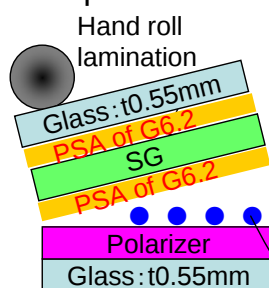
◆Prevention of Bubbles

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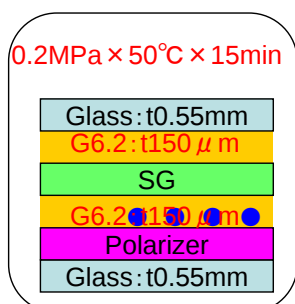
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Improvement of bubble by UV irradiation

● Sample condition

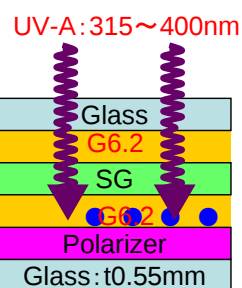


Autoclave condition



UV was irradiated within 2hrs after A/C had been completed.

After UV irradiation



Φ 50 μm acrylic beads "tecopolymer MBX-50"

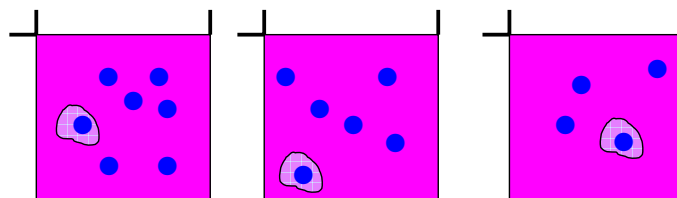
● Observation of bead bubble

Dwelling condition → 85°C × 6hrs

RT. × 15hrs



● n=3pcs

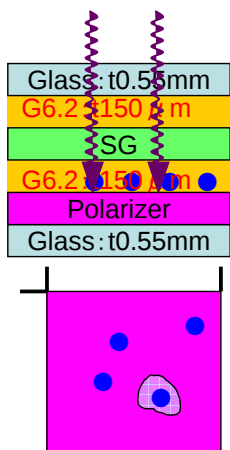


*The number of beads a piece is tens of pieces.
The place of the bead is random.

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● Comparison after UV irradiation vs. Bubble

lamination model	※2) UV irradiation condition after lamination	Number of bubbles in one piece			
			N=1	N=2	N=3
UV irradiation UV-A: 315~400nm 	Case.1 Unirradiation UV	Before	0	0	0
		After	1	1	2
	Case.2 UV irradiation: 250mJ/cm2	Before	0	0	0
		After	0	1	0
	Case.3 UV irradiation: 500mJ/cm2	Before	0	0	0
		After	0	0	0
	Case.4 UV irradiation: 1000mJ/cm2	Before	0	0	0
		After	0	0	0

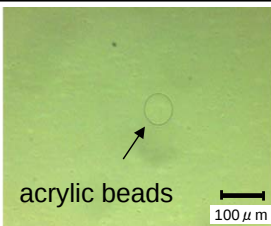
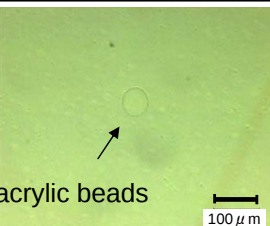
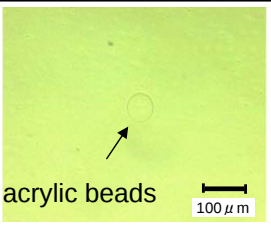
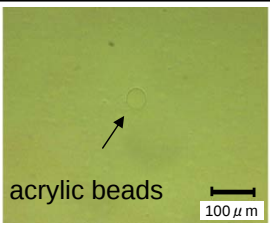
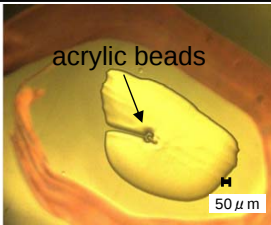
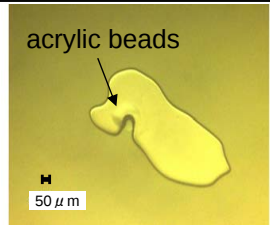
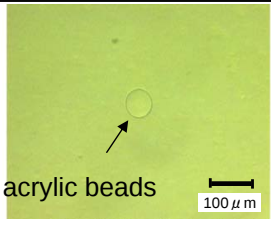
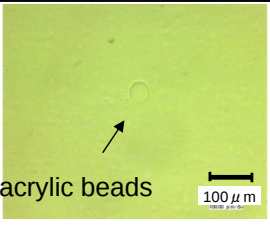
※1) PSA:G.X2(t150 μ m)LotNo.10G0624

※2) Accumulated UV Meter:UIT-150-A / S365 (MADE by USHIO INC.)

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● Bubble resistance on UV irradiation condition

Test	Case.1	Case.2	Case.3	Case.4
After UV condition	0mJ/cm ²	250mJ/cm ²	500mJ/cm ²	1000mJ/cm ²
Before				
	OK	OK	OK	OK
After 85°C × 6hrs				
	4 bubbles / 3 pcs	1 bubble / 3 pcs	OK	OK

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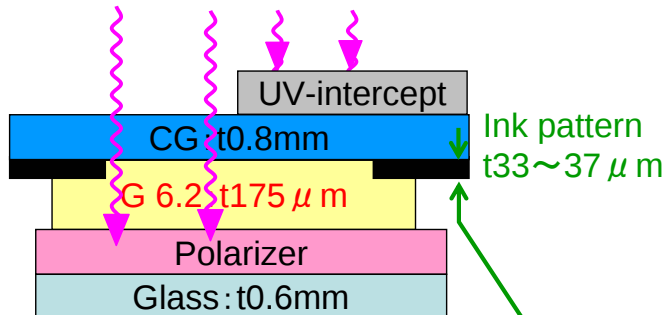
◆ CG/G 6.2/Polarizer test

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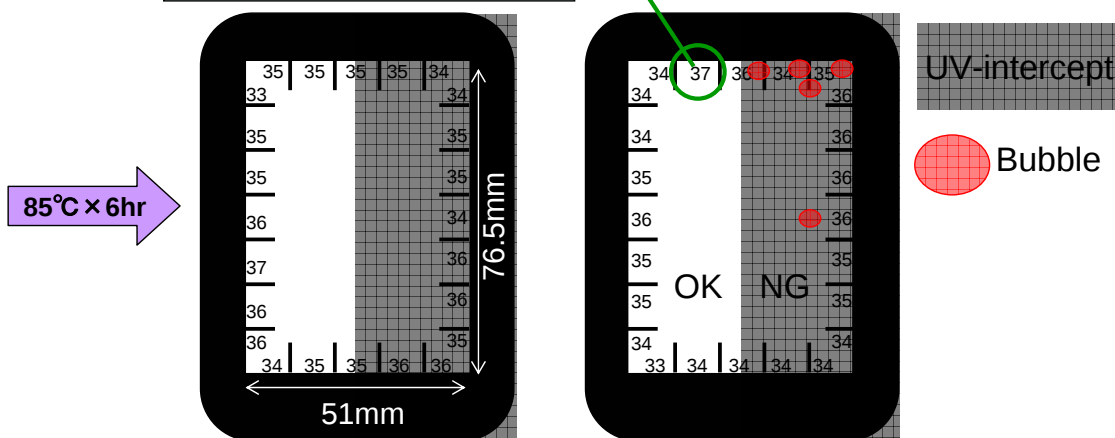
◆ CG/G 6.2/Polarizer test

UV irradiation: 2000mJ/cm²



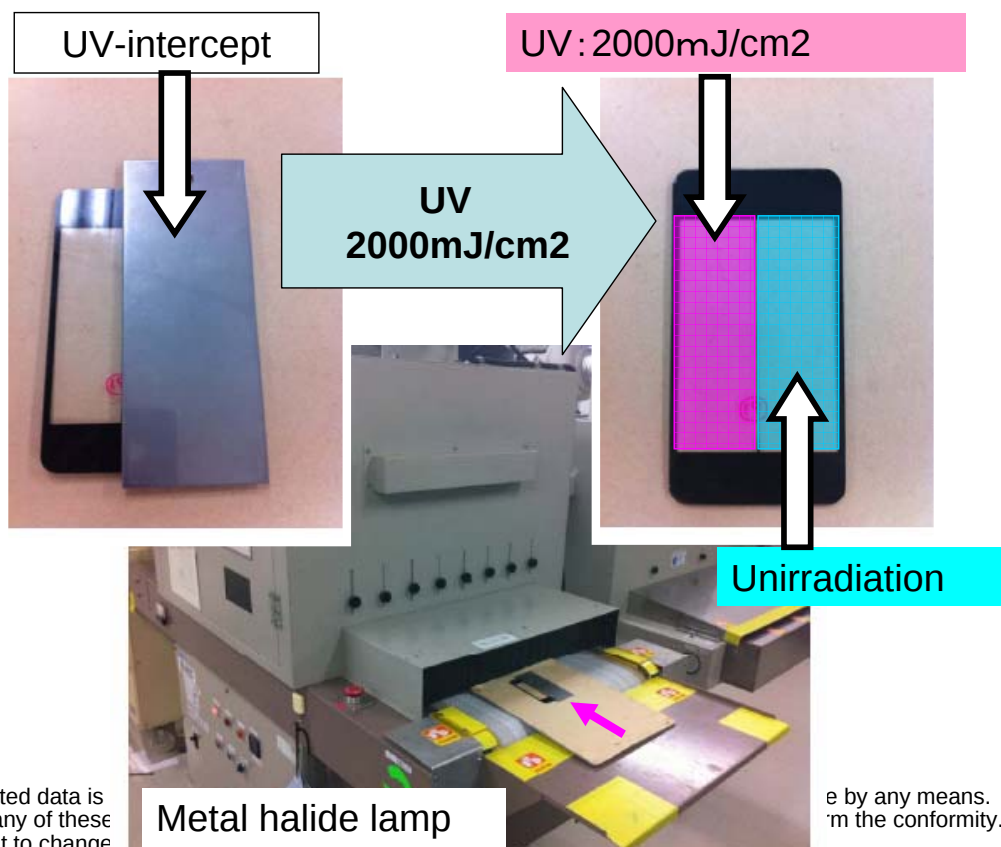
=Result=

- 1) No bubble can be found in the UV irradiated area including around thick ink pattern
- 2) Bubbles can be found around the thick Ink pattern in the UV cut area.



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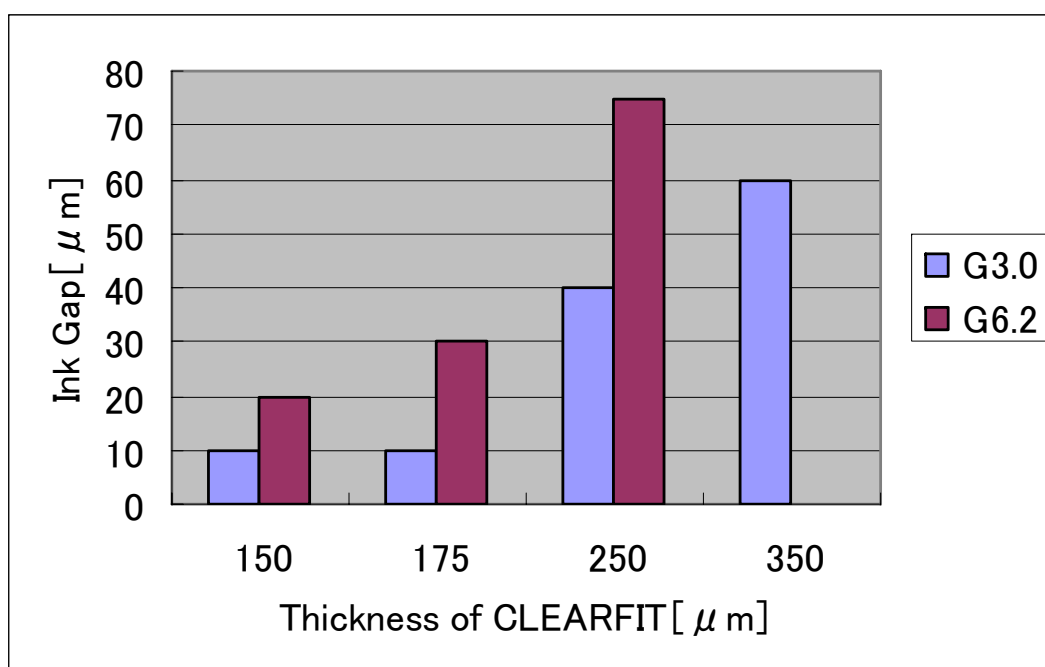
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◆ Improvement of CG ink gap absorption ability

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Evaluation of Ink Gap



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◆ After UV irradiation vs. Optical reliability

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【G6.2】After UV irradiation vs. Optical reliability

Glass:t0.55mm PSA:t175 μ m Glass:t0.55mm			Input after UV(365nm energy equivalent)				
			G3.0	G6.2			
			0 (Blank)	0 (Blank)	1,000 mJ/cm2	10,000 mJ/cm2	100,000 mJ/cm2
Optical property	ISO13468-1	Tt(%)	91	91	91	91	91
	ISO14782	Haze(%)	0.3	0.3	0.3	0.3	0.3
	ISO 7724-1	L*	96.5	96.5	96.5	96.5	96.4
		a*	-0.28	-0.27	-0.28	-0.28	-0.31
		b*	0.31	0.24	0.25	0.30	0.38

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◆ Prevention of LCM-mura

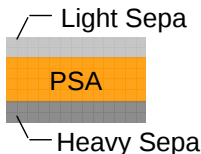
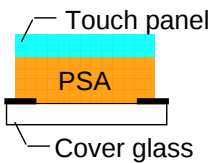
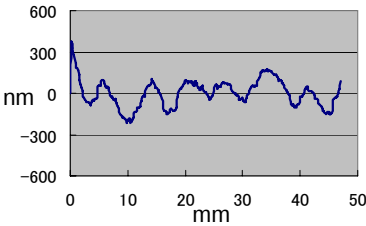
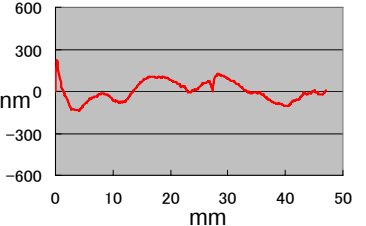
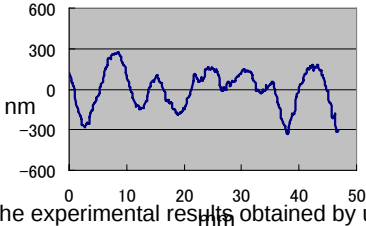
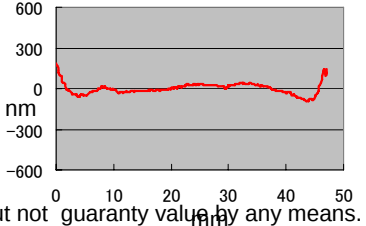
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Waviness measurement before/after lamination

Waviness measurement with interferometer

- measurement length :45mm
- wavelengths :632nm
- device :F601 Laser Interferometer (Fujinon corporation)

Thickness irregularity analysis In TD section	Before lamination	After lamination
		
【G3.0】 150 μm		
【G6.2】 150 μm		

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