






허들링 2017

FF-1030 Technical Data Sheet

KOLON INDUSTRIES

Summary of Circuit Properties: B.P 50%

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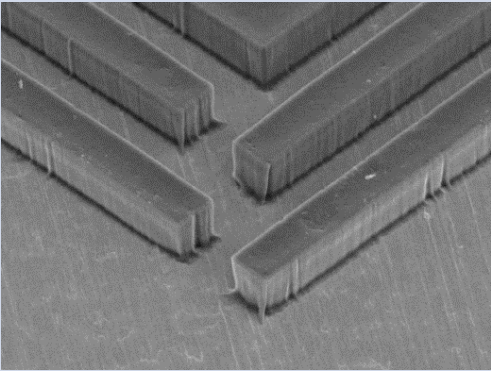
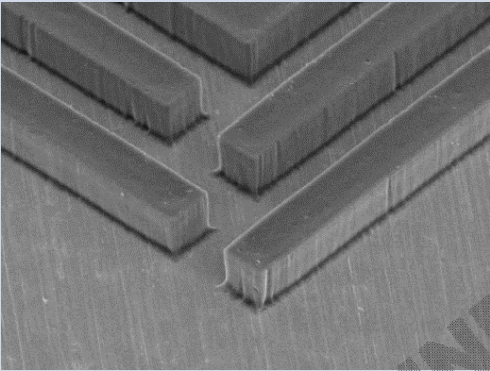
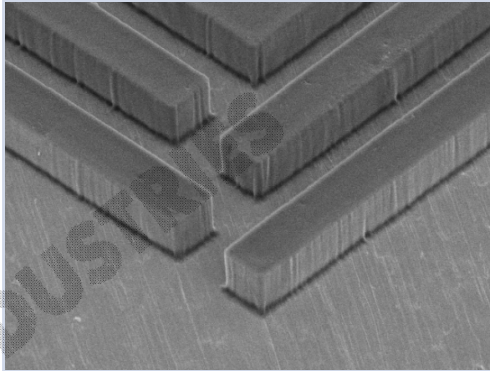
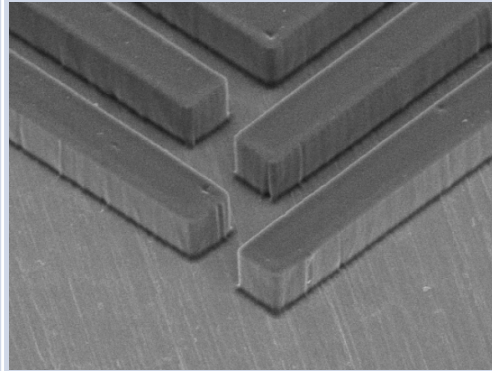
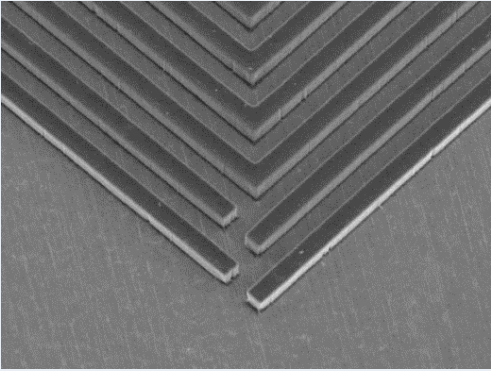
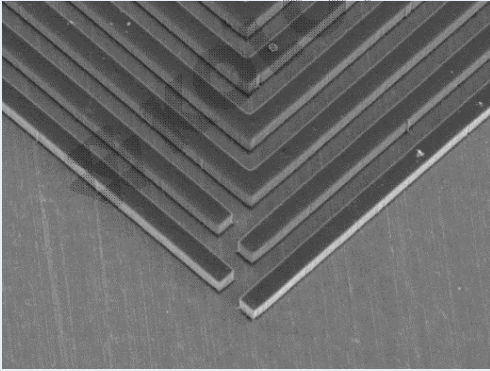
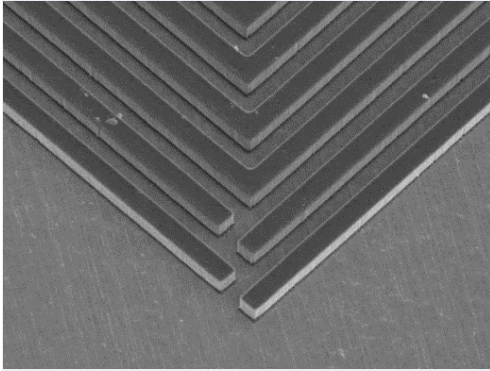
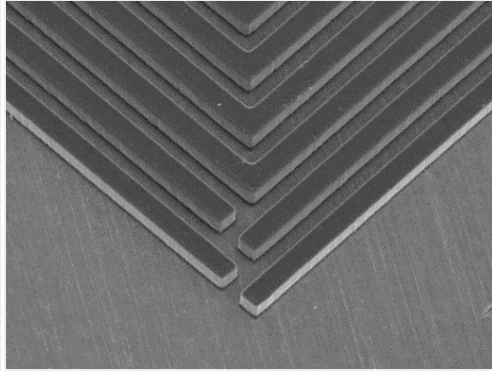
Category		FF-1030
Minimum Developing Time (sec.)		15
Developing Time (Break point)		30
Exposure (mJ)	13sst	14
	16sst	20
	19sst	28
	22sst	40
Resolution (μm) 	13sst	20
	16sst	24
	19sst	26
	22sst	36
Adhesion (μm) 	13sst	29
	16sst	27
	19sst	18
	22sst	16
1/1 Resolution (μm) 	13sst	26
	16sst	24
	19sst	26
	22sst	32

Test Condition

- Test Artwork : KOLON test pattern
- Substrate : 0.4T FR-4 1Oz
- Pretreatment
 - Brush : 3M #600x2+#800x2
 - S/E : H_2SO_4 + H_2O_2 + Stabilizers

Lamination

- Model : OTS YH-6300 DL
- Temperature : 110 °C
- Pressure : 4kg/cm²
- Speed : 2.0m/min
- Exposure :
 - Model: Philoptics PHILEX-MC10
 - Type : Collimated Light
- Development
 - Chemical : 1.0wt% Na_2CO_3
 - Temperature : 30 °C
 - spray pressure : 1.5kgf
 - Break Point : 50%

	13sst	16sst	19sst	22sst
고배율				
저배율				

Stripping Test

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NaOH concentration		2 wt%	2.5 wt%	3 wt%	4 wt%
Step(41sst)					
FF-1030	13	24 SS	18 S	16 S	14 MS
	16	27 SS	21 MS	18 M	15 L
	19	32 S	24 MS	20 ML	17 L
	22	36 MS	27 M	23 ML	18 LL

Test Conditions

- Pretreatment → Lamination(Wet) → Exposure → Developing→ Strip
- Temperature : 50 °C
- Concentration : NaOH 2,2.5,3,4 wt%
- Test Method : Dipping Method

Stripped Particle Size

- S – Small (Lower than 0.5cm)
- M –Medium (0.5-2cm)
- L – Large (2-5cm)
- LL – Extra Large (over 5cm)

Scum & Sludge Test Method

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1. Test Purpose

- Scum & Sludge TEST of DFR Develop

2. Test Condition

- Na_2CO_3 1.0 wt% , Film $1\text{m}^2/\text{L}$, 30°C , 2500rpm 4h.

3. TEST METHOD

Immerse $1\text{m}^2/\text{L}$ of
DFR to 1.0 wt% of
developing solution(Na_2CO_3)

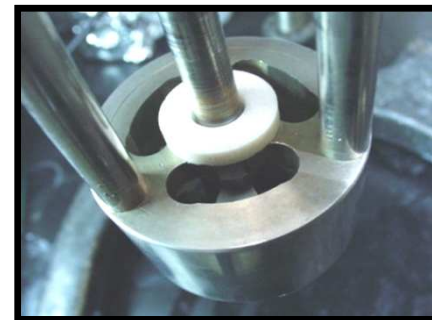
Mechanical Stirring for 1 hr
Under yellow room

Homo-mixer Stirring for 4 hrs
(RPM : 2500, Temp : 30°C)

After holding 1day,
Check the sludge
Occurred & Filtering test

4. Result

- * Filter Time : refer next page
- * Sludge Weight : refer next page
- * Scum : None



Scum/Sludge Test Result

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Film scum & sludge test data

Category	Filtering Time (50ml)	Filtering Time (100ml)	Sludge Weight (400ml filtering)	Scum
FF-1030	32 sec	75 sec	0.30 g	無

<Filter Time / Sludge Test condition>

Filter paper : ADVANTEC-5A
Filtering Time : Measure after being filtered 50ml, 100ml
Sludge Weight : Measure sludge weight after being filtered 400ml

1. Test Purpose

: Comparison Test of Develop foam

2. Developer Test Condition

- ① Test film : FF-1030 (0.5m²/ℓ)
- ② Injection pressure of Nozzle 1.0~0.8kg.f / test temperature 30℃

Foam Test Image



3. Foam Test Result

	FF-1030
Time	
10 min	3.6
20 min	5.4
30 min	6.8
40 min	7.0
50 min	7.0
60 min	6.5
70 min	6.5
80 min	
90 min	
	Keep Foam

General Process Guideline of FF-1030 < CONFIDENTIAL >

Process		Best Condition	Recommendation	Specification
Lamination	Roll Temp. (°C)	110	110 ± 10	Exit Temp.: 50 ± 10 °C
	Speed (m/min)	2.0	2.0 ± 1.0	
	Roll Pressure (kgf/cm ²)	4.0	4.0 ± 1.5	
Holding Time	Time (min)	20min~4hrs	15min – 8hrs	Under Yellow Light
Exposure	Exposure Energy (mJ/cm ²)	20mJ (16/41 ST)	20~30mJ (16~19/41 ST)	collimated light
Holding Time	Time (min)	1hrs	20min – 24hrs	Under Yellow Light
Development	Chemical	1.0wt%	1.0 ± 0.2wt% Na ₂ CO ₃	
	Temp. (°C)	30	30 ± 2	
	Break Point	50%	40~60%	
	Spray Pressure (kgf/cm ²)	2.0	2.0 ± 0.5	
Stripping	Chemical	3	2.5 – 3.0wt% NaOH	
	Temp. (°C)	50	45-55	
	Break Point	50	40~60%	