

One&Only



더하고 곁하고 나누기

FF-1000 技术资料

KOLON Central Research Park 可隆研究中心
Electronic Materials Research Institute 电子材料研究

CONFIDENTIAL: This document contains confidential or proprietary information of KOLON INDUSTRIES, INC., which is protected under applicable laws, including Unfair Competition Prevention and Trade Secret Protection Act. Any unauthorized disclosure, use, copying or dissemination of the information contained in this document is strictly prohibited.

Features of FF-1000 产品特点



더하고 잘하고 나누기

1. Excellent Adhesion 良好的附着力/覆盖力

2. High Photospeed 很快的曝光速度

3. Low Foam 在显影段很低的泡沫

4. Wide Processing Latitude 工艺操作范围较宽

5. Scum Free 少污染, Low Sludge 少渣

Summary of Circuit Property 线路特性总结



더하고 곁하고 나누기

	FF-1030	FF-1040
最少显影时间 (sec.)	16	21
Sensitivity (感光度) (sst/41sst)	感光度(/41sst)	Energy能量 (mJ/cm ²)
	16	19
	19	27
	22	38
	25	54
Resolution 解析度 (μm) 	感光度(/41sst)	Data数据 (μm)
	16	21
	19	24
	22	27
	25	31
Adhesion 附着力 (μm) 	16	21
	19	18
	22	18
	25	16
1/1 Resolution 分辨率 (μm) 	16	20
	19	23
	22	25
	25	30

测试条件 (Test Conditions)

- Test Artwork : KOLON 41step
Test Artwork (Glass Mask)
- 贴膜 Lamination :
- Model: OTS YH-6300 DL
- Temperature: 110 °C
- Pressure: 4kg/cm²
- Speed: 2.0m/min
- 曝光 Exposure :
- Model: Philoptics PHILEX-MC10
- Type : 평행광(collimated light)
- 显影 Development :
- 1.0wt% Na₂CO₃
- Temperature: 30 °C
- Break Point: 50%

Stripping Property 剥膜性能总结



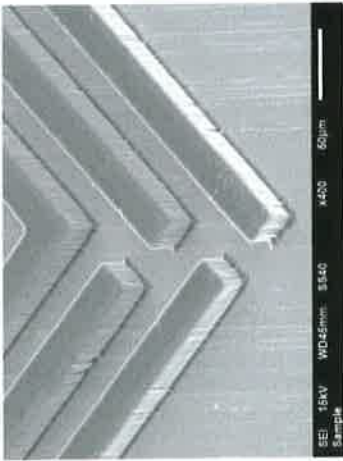
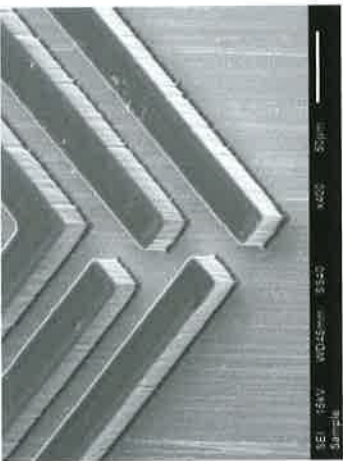
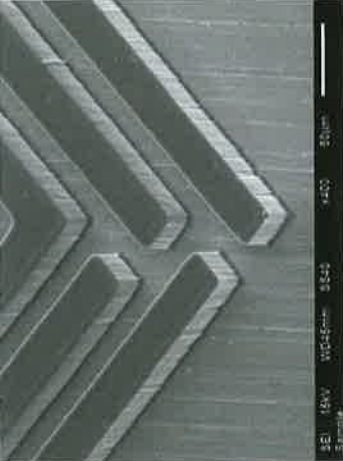
더하고 곁하고 나누기

Step(41sst)	NaOH浓度	测试条件 (Test Conditions)			
		剥离片大小 (Stripped Particle Size)			
FF-1030	16sst	39 S	31 M	26 MS	20 ML
	19sst	42 MS	34 ML	26 ML	21 L
	22sst	45 M	35 ML	29 ML	22 LL
	25sst	46 ML	37 L	30 L	23 LL
FF-1040	16sst	62 SS	53 SS	47 S	36 M
	19sst	77 SS	59 S	52 MS	43 MS
	22sst	83 S	61 S	56 MS	41 M
	25sst	87 S	66 MS	58 M	44 ML

SEM Image



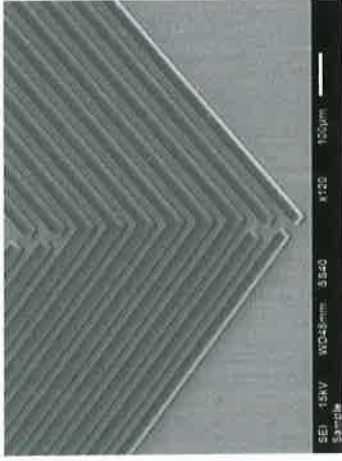
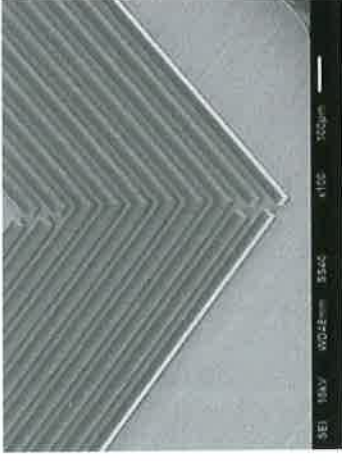
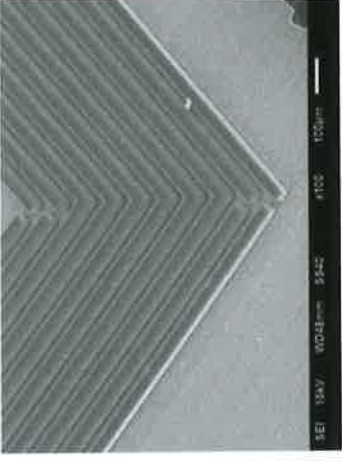
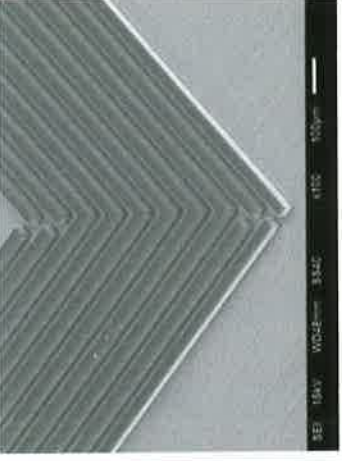
더하고 곱하고 나누기

品种	Line/space (um)	16sst	19sst	22sst
FF-1030	30/30			
FF-1040	34/34			

SEM Image



더하고 곁하고 나누기

品种	Line/space (um)	16sst	19sst	22sst
FF-1030	30/30			
FF-1040	34/34			

Tenting test 封孔测试



더하고 곁하고 나누기

-显影Developing: 1.0wt% Na_2CO_3

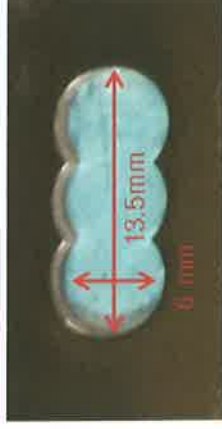
-Temperature : 30 °C

-Break Point : 50%

-测试基板 : 10Φ 圆孔 & 眼镜孔

眼镜孔

: 使用 100个眼镜孔(10 X 10)



10Φ圆孔 64个	显影1次 <Broken>	显影2次 <Broken>	显影3次 <Broken>	显影4次 <Broken>	显影5次 <Broken>	破孔总计
19sst(FF-1040)	-	2	全部破			64
22sst(FF-1040)	-	-	-	全部破		64

眼镜孔 100个	显影1次 <Broken>	显影2次 <Broken>	显影3次 <Broken>	显影4次 <Broken>	显影5次 <Broken>	破孔总计
19sst(FF-1040)	-	-	全部破			100
22sst(FF-1040)	-	-	-	全部破		100

Scum & Sludge Test 渣污染/渣测试



더하고 나누기

1. Test Purpose 测试目的

: TK-7000 Scum/Sludge Test 浮渣与污泥测试

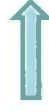
2. Test Condition 测试条件

• Na_2CO_3 1.0 wt% , 400mL, Film 1 m²/L, 30 °C, 3000rpm 转速

• Use "Scum generator" 浮渣搅拌机

3. Test Method 测试方法

Immerse 1 m²/L of
DFR to 1.0 wt% of
developing solution (Na_2CO_3)
沉浸显影液



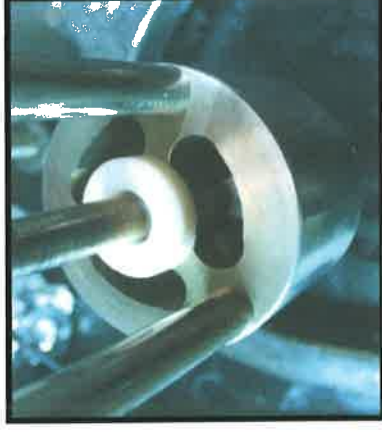
Mechanical Stirring for 1 hrs
Under yellow room
在黄光下机械搅拌一个小时



Homo-mixer Stirring for 4 hrs
高速搅拌
(RPM : 3000, Temp : 30 °C)



After holding 1day, Check the sludge
Occurred & Filtering test
持续一天后使用
过滤纸检查污泥含量



Filter Time / Sludge data 过滤时间/污泥数量



더하고 곁하고 나누기

Film scum & sludge test data

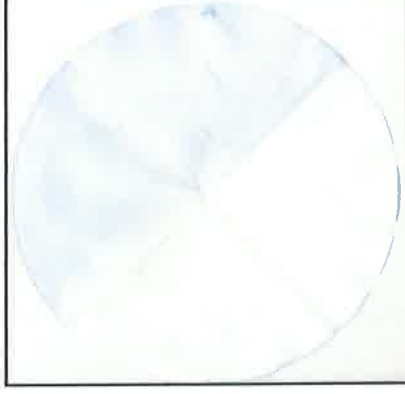
过滤时间/污染测试数据

구분	Filtering Time 过滤时间 (50ml)	Filtering Time 过滤时间 (100ml)	Sludge Weight 污泥重量 (400ml filtering 过滤)	Scum 渣污染
FF-1000	25 sec	86 sec	0.22 g	無

SHALE Image



FILTER PAPER Image



<Filter Time / Sludge Test condition>过滤时间/污泥测试条件

Filter paper 过滤纸 : ADVANTEC-5A

Filtering Time 过滤时间 : Measure after being filtered 50ml, 100ml 过滤后称量

Sludge Weight 重量 : Measure sludge weight after being filtered 400ml 过滤后称测量

Foam Test Summary

泡沫实验总结



더하고 곁하고 나누기

1. Test Purpose 测试目的

: FF-1000 Foam Test 泡沫测试

2.Developing Solution Condition 显影液条件

- ① Test film 测试片: FF-1000(0.5㎡/ℓ)
- ② Nozzle Pressure 喷淋压力: 1.0~0.8kg.f
- ③ Temperature 温度: 30℃

※ Foam Test Image 泡沫测试图像



3. Foam Test Result 泡沫测试图像

	FF-1000
时间	高低 (cm)
10 分钟	4.9
20 分钟	5.9
30 分钟	6.3
40 分钟	6.7
50 分钟	6.9
60 分钟	6.9
70 分钟	6.9
80 分钟	6.9
90 分钟	6.9
	泡沫 保持

General Process Guideline 常规操作参数



더하고 곁하고 나누기

Process 流程		Recommendation 规范	Specification 其它说明
Lamination 贴膜	Roll Temp. (°C) 滚轮温度	110 ± 10	出板温度 Exit Temp.: 50 ± 10 °C
	Speed (m/min) 速度	2.0 ± 1.0	
	Roll Pressure (Kg/cm ²) 滚轮压力	3.5 ± 1.5	
Holding Time 停放时间	Time (min)	15min – 8hrs	Under Yellow Light 在黄光下作业
Exposure 曝光	Exposure Energy 曝光能量 (mJ/cm ²)	Step Held 7~10/21 ST	Without Artwork Resist Step 曝光尺测试在菲林下测试
Holding Time 停放时间	Time (min)	15min – 8hrs	Under Yellow Light 在黄光下作业
Development 显影	Chemical 显影液	1.0 ± 0.2wt% Na ₂ CO ₃	
	Temp. (°C) 温度	30 ± 2	
	Break Point 显影点	50%	
	Spray Pressure (Kg/cm ²)	2.0 ± 0.5	
Stripping 褪膜	剥膜液/浓度	2 - 4wt% NaOH	
	Temp. (°C) 温度	45-55	
	剥膜点	40~60%	

* Clean Room 无尘房: 20~22 °C, 50 ± 10 % RH