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2004 08 11

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(22)2003 02 04

(71)

134

(72)

335-33

1301-1105

724305-1306

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(54)

， LiF ， ，
，
가 NaCl ’ ， ’ NaCl LiF
， 가 ，
가 ．

7

1 NaCl ．
2 NaCl ．
3 1.0nm 5.0nm 가 NaCl XPS ．
4 LiF NaCl ．

5		LiF		NaCl
6	1.0nm	가	NaCl	LiF
7	1.0nm	가	NaCl	LiF

, NaCl 가

), Li(2.9eV), Na(2.3eV) 가 , Sr(2.4eV), Ca(2.8eV) .

LiF, MgO, MgF₂, Alkaline earth fluoride.

2.25cd/A

가

가 가

가 NaCl ,
가 .

ITO () N, N'-bis(3-methylphenyl)-N, N'-diphenylbenzidine(TPD), tri(8-hydroxy

quinolato) aluminum(Alq_3) , N
aCl .

, NaCl .

ITO ITO , , ,
(hot trichloroethylene), .

ITO 가 , .

2.5×10^{-8} Torr , 가 0.1 /sec 50nm
가 N, N'-bis(3-methylphenyl)-N, N'-diphenylbenzidine(TPD) ,

가 , 1 /sec Alq_3 , 50nm

, NaCl 0.1 /sec , ,
Al .

NaCl
LiF ,
NaCl .

XRD (thickness monitor) .

NaCl monochromatic Al K radiation X-ray Photoelectron Spectroscopy(XPS)
, L-V(luminance-voltage), I-V(current-voltage) Keithley source measurement unit(Model
237) Photoresearch candela meter(PR650) ,

1 NaCl 0.5, 1.0, 2.0nm 가 , Al , NaCl
.

NaCl 가 1.0nm .

NaCl .

, 2 1 NaCl , 가
.

, 0.5nm 2.0nm NaCl Al
, Na .

NaCl 1.0nm .

, 1 가 2~6V 2
.

, NaCl
, .

3, NaCl 1.0 5.0nm 가 NaCl Na Cl 가 XPS .

, 1.0nm 가 NaCl Na Cl 0.6:1 , 5.0nm 가 NaCl 0.9:1 .

가 NaCl Na Cl 가 1:1 가 , Na Cl .

, 1.0nm 가 NaCl 5.0nm 가 Na .

4 5 LiF NaCl 가 0.5nm, 1.0nm LiF NaCl .

, NaCl LiF .

, 가 1.0nm NaCl LiF 10V , 1.0nm 가 NaCl 가 LiF 3542cd/m² , 133mA/cm² , 1.0nm 가 LiF 가 42 96cd/m² , 200mA/cm² .

LiF 가 NaCl .

, .

, 가 , 가 가 가

6 1.0nm 가 NaCl LiF NaCl .

, 가 NaCl 가 0~50mA/cm² 1.0nm 가 LiF 가 .

, 가 가 NaCl 가 가 .

7 6 1nm 가 NaCl LiF , 9V .

NaCl 2.85cd/A , LiF 2.25cd/A .

가 가 , NaCl 가 가 LiF .

, NaCl LiF 가 , 가 .

1nm NaCl LiF

가 .

가 NaCl

가 .

(57)

1.

NaCl

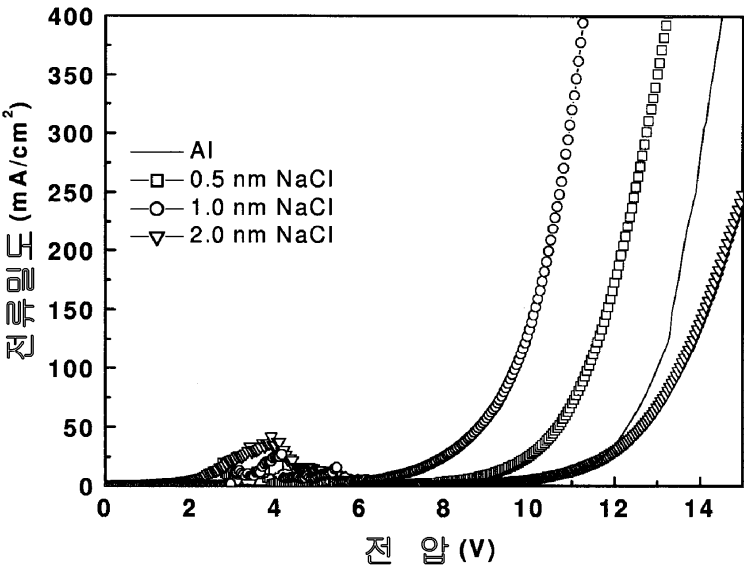
2.

NaCl 1.0 ± 0.4nm

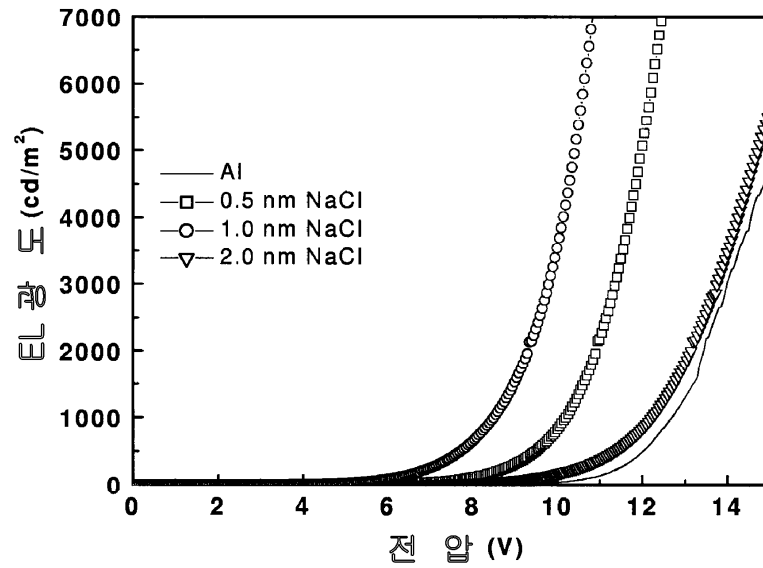
3.

NaCl 1.0nm

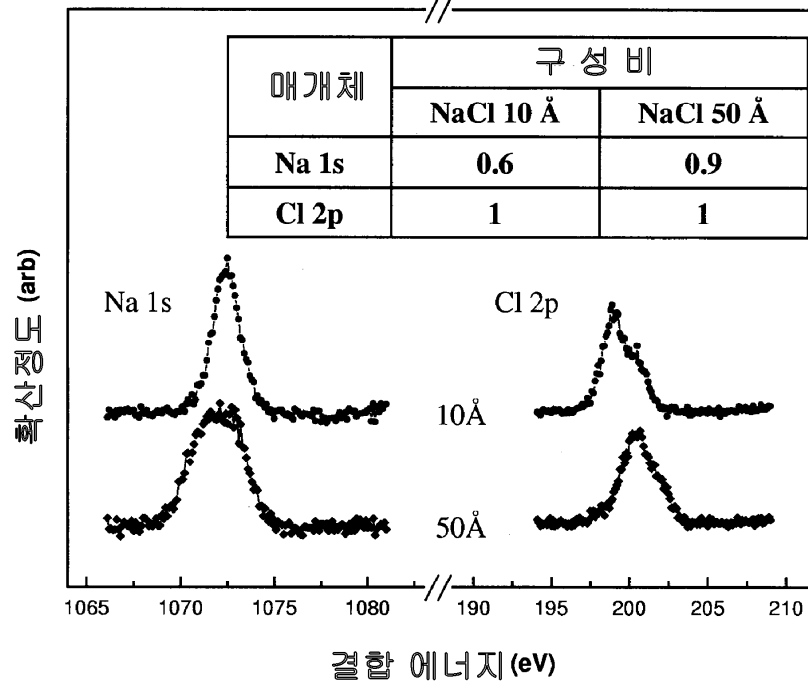
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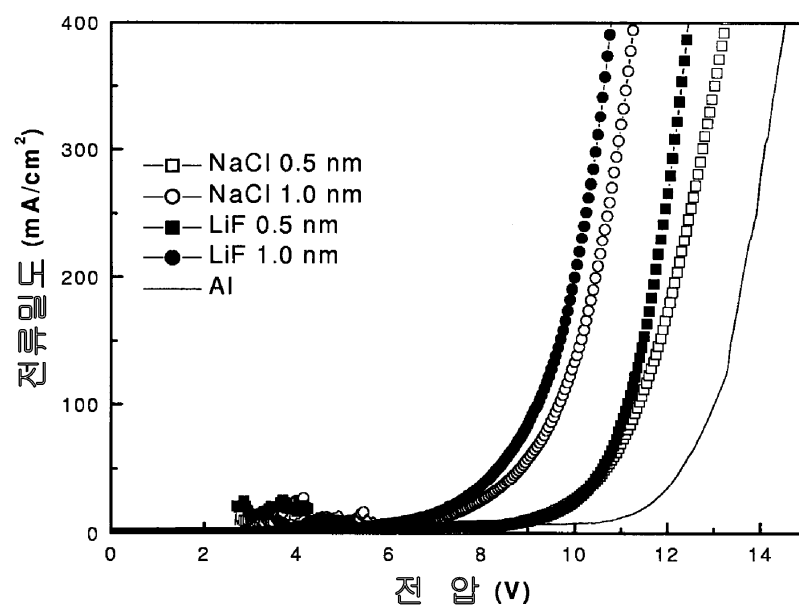
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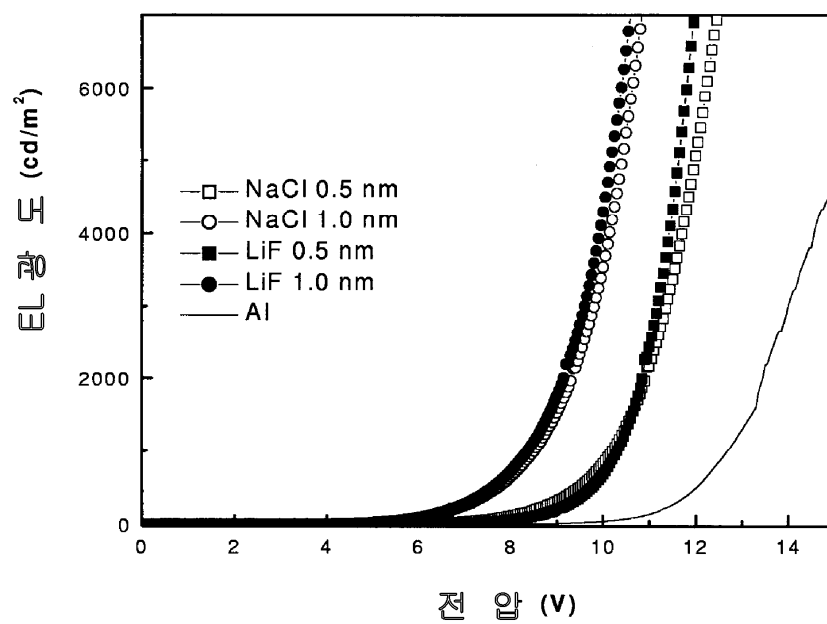
3



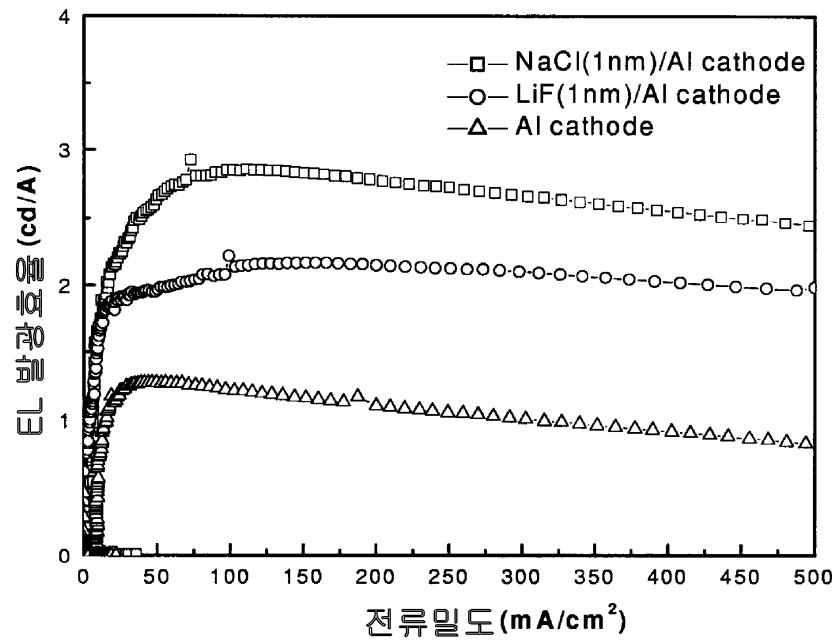
4



5



6



7

