

(19)
(12)(KR)
(A)(51) 。 Int. Cl. ⁷
C09K 11/06(11)
(43)2002 - 0078264
2002 10 18(21) 10 - 2001 - 0018326
(22) 2001 04 06

(71) 20

(72) 102 104

(74)

:

(54)

(phenothiazine) 가 () -

, ,

1

,

1

.

2

.

3

.

(phenothiazine)

가 () -

(exciplex)

(band gap energy)가

가 ()

가

가

가

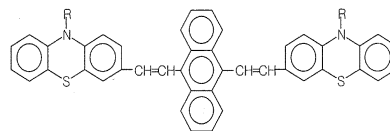
가

가

가 () -

()

()



R

가 1

20

()

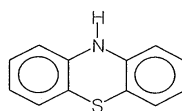
(Arbuzov)

(Honer - Emmons)

(1) 1

()

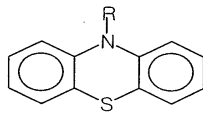
:



() (alkyl halide):

R - X

():



R , 가 1 20 , X (F), (Cl), (Br),
(I) , R 2 .

, (dimethyl sulfoxide), (dimethyl formamide),
가 , 가 .

가

가

1mole

1.5mole

2 mole

(2) 2

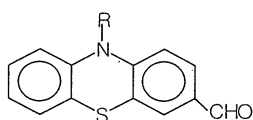
1
methyl formamide)

()

():

(phosphoryl chloride)

(di



, 1,2 - (1,2 - dichloroethane) ,
가

()

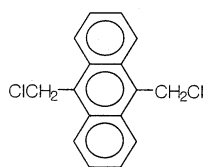
1mole

1

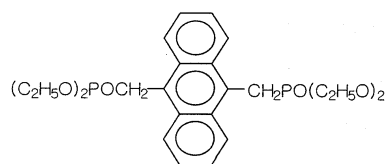
2mole

(3) 3

() (9,10 - () :9,10 - bis(chloromethyl)anthracene):



(triethylphosphite) ():



2 ()
(phosphonate)

가 , 16
0 , 100 130 .

() 9,10 - () 1mole 10 15mole
9,10 - () ,

(4) 4

1 3 () ()
() .

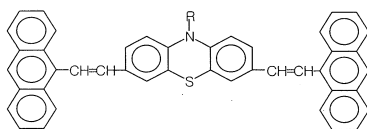
, (tetrahydrofurane), (toluene), (benzene)
, 가 , () ()
1mole 4 7mole 가 .

2

가 () -

() .

()

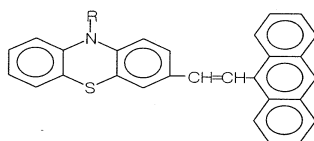


, R , 가 1 20 ()
() 가 (Arbuzov) - (Honer - Emmons)

() 2 () 1mole
8 10mole 가
() 3 () 9 -
, ()

3

가 () -
()
()



, R () , 가 1 20 ()
() 가 (Arbuzov) - (Honer - Emmons)

() 3 () 9 -
, ()
() ()
(exciplex)

가 () - () 가 ,

4

(40), (50), (60), (70), (80), (10), (20), (30),
 가 () -
 .
 (20) (10) ITO(In₂O₃ + SnO₃) IZO(In₂O₃ + ZnO) (sputtering)
 .
 (30) (20) (copper()Phthalocyanine)
 , (40) (30) N,N - (- 1 -) - N,N' -
 (triphenyl amine) (diphenylamine)
 .
 (50) 1 3 () ()
) (Alq3) (dopant) (8 -
)
 (60) Alq3, 2 - (4 -)
 - 5 - (4 - -) - 1,3,4 -
 (50)
 .
 (70) (60) (Cs, Rb, K, Na, Li) (Li₂O)
 , (80) Ma/Ag, Al, Al/Li, Al/Nd
 .
 3 () 4
 , 가 , 3 , 6
 8 lm/W 1000 1800 cd/m² 가
 .
 5
 2 , (10) (20), (30),
 (50), (70), (80)
 가 () -
 .
 ,
 가 , 5 4
 .
 4
 ,
 ,
 ,
 1
 (1) N - (N - alkylphenothiazine)

300ml 3 (dimethylsulfoxide) 150ml, 가 (NaOH) 19.2g, (phe
nothiazine) 16g 1, (alkylbromide)
17g 가 3 .
3 .

(petroleum ether) = 2 : 1) 20.5g () N - (n - : (82%).

(2) N - - 3 - (N - alkyl - 3 - formylphenothiazine)

300ml 3 1,2 - (1,2 - dichloroethane) 30ml 가 (1) () N
- 12.46g . , 8.7g
17.5g 12 가 , 33 %
4
(: = 2 : 1) 10.2g
() N - - 3 - (69%).

(3) 9,10 - () (9,10 - Bis(diethoxyphosphinylmethyl)anthracene)

300ml 3 () 9,10 - () 10g 117g (t
triethylphosphite) 120 12 .
, 9,10
- () 27g ()
) 9,10 - () (80.6%).

(4) ()

250ml 3 60ml 가 , () N - - 3 -
8g () 9,10 - () 10.4g 가
14.8g 40ml , 3
0 7 .
() 4.6g .

(5)

ITO 30nm .
N,N - (- 1 -) - N,N' - 50nm .
(4) () 30nm Al
q3 40nm . Li₂O 25nm
Mg, Ag 100nm .
ITO (+) , Mg, Ag (-)
가 , 3 (λ max) 612nm . 1700cd/m²,
8.2 lm/W .

2

1 () , 1
6.4 lm/W 1 (Photoresearch) PR - 650 , 1000 cd/m²

3

() () 1
가 PR - 650 , ()
(λ max) 601nm , 1600 cd/m² , 7.8
lm/W, () (λ max) 607nm
, 1530 cd/m² , 7.7 lm/W .

4

() Alq3 , 1
max) 612nm) , 1750cd/m² , 3 (λ
8.8 lm/W .

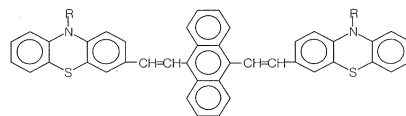
(57)

1.

가 () - .

2.

1 , ():

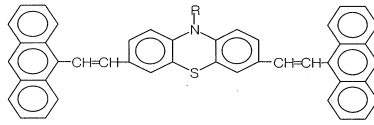


, R , 가 1 20

3.

1 ,

():

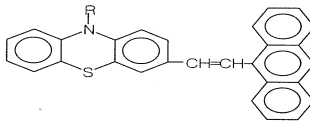


, R , 가 1 20

4.

1 ,

():



, R , 가 1 20

5.

, , 가 () - ,

6.

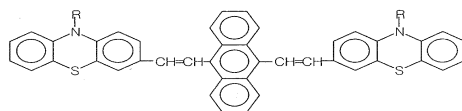
5 ,

(8 -) (Alq3) 가

7.

5 6 ,

():

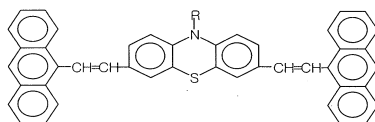


, R , 가 1 20

8.

5 6 ,

():

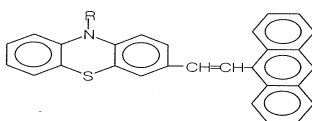


, R , 가 1 20

9.

5 6 ,

():



, R , 가 1 20

10.

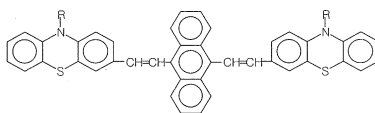
5 6 ,

가

11.

10 ,

():

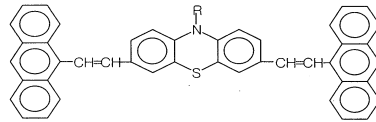


, R , 가 1 20

12.

10 ,

():

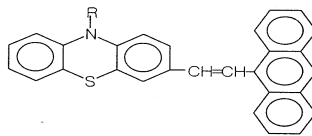


, R , 가 1 20

13.

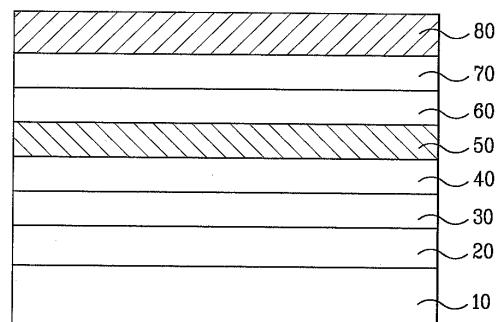
10 ,

():

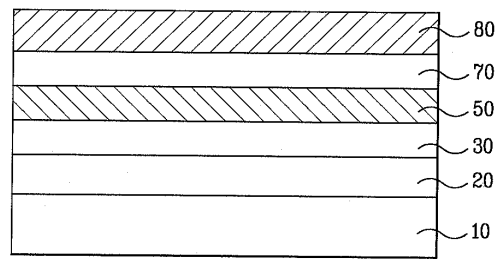


, R , 가 1 20

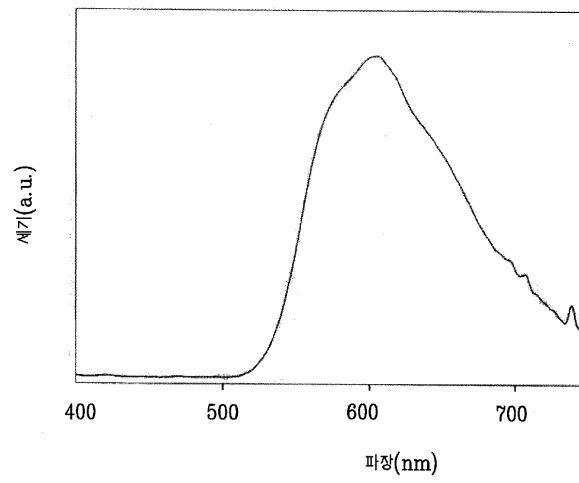
1



2



3



专利名称(译)	红色有机电致发光材料和使用其的有机电致发光器件		
公开(公告)号	KR1020020078264A	公开(公告)日	2002-10-18
申请号	KR1020010018326	申请日	2001-04-06
申请(专利权)人(译)	LG电子公司		
当前申请(专利权)人(译)	LG电子公司		
[标]发明人	HAN YOONSOO 한윤수		
发明人	한윤수		
IPC分类号	C09K11/06		
CPC分类号	C09K11/06 C09K2211/1011 C09K2211/1037 H01L51/0071 H01L51/5012 H01L51/5072 H01L51/5092 H05B33/14 Y10S428/917		
代理人(译)	金勇 新昌		
其他公开文献	KR100662294B1		
外部链接	Espacenet		

摘要(译)

本发明涉及使用吩噻嗪，红色发光材料和其中蒽基以饼(π)-共轭物形式结合并形成的材料的有机电致发光器件，提供高有机电致发光器件效率和高亮度，空穴传输特性和电子传输特性优异，红光发射特性在电场下是优异的。发光材料和有机电致发光器件。

