

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl.⁷
C09K 11/06

(11)
(43)

10-2004-0060259
2004 07 06

(21)

10-2002-0086805

(22)

2002 12 30

(71)

20

(72)

106 1202

102 104

110 801

580 218 904

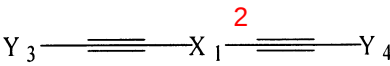
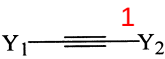
1 202 902

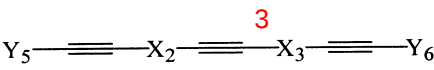
(74)

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(54)

가 1 3





, Y₁ Y₆ X₁ X₃ .

1

1 .

< >

1 : 2 :

3 : 4 :

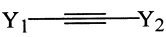
5 : 6 :

7 : 8 :

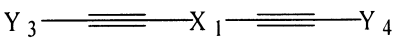
가 .

1 () 2 () , 1 ,

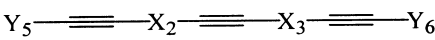
[1]



[2]



[3]



$$, Y_1 \quad Y_6 \quad X_1 \quad X_3$$
[illegible]

(Cathode Ray Tube: CRT), (Electroluminescence Display: ELD),
(Light Emitting Diode: LED), (Plazma Display Panel: PDP) ,
(Liquid Crystal Display: LCD) .

가 . , 가 .
가 가 , (back light) , 가

가
· , 1987 (Eastman Kodak) 200 V , 가 가
· , 1987 가 (alumina quinone) π -
가 가
(electroluminescence device : EL device) (emmitter layer)

가 가 가 .

[illegible][illegible]

1 () 2 (),

$$\begin{array}{ccccccc} & & 1 & / & & / & 2 \\ 1 & / & / & / & / & / & 2 \end{array}$$

가 ()

(exciton) . , 가

(1).

ITO(Indium tin oxide, $\text{In}_2\text{O}_3 + \text{SnO}_2$)가 1 () . ,

(HIL: Hole Injecting Layer)
(CuPC: Copper(II) Phthalocyanine) 10 30 nm .

(HTL: Hole Transport Layer) . NPD(N,N-di(naphthalen-1-yl)-N,N'-diphenylbenzidine) 30 60 nm .

(Organic Emitting Layer) . ,

(host) Alq3(tris(8-hydroxy-quinolate)aluminum) , MQD(N-methylquinacridone) 30 60 nm .

(ETL: Electron Transport Layer) (EIL: Electron Injecting Layer) Alq3 30 50 nm .

Alq3 / .

2 () , .

(full-color) , , 3가

Alq3 (ETL) Alq3 ,

DCM1 DCM2 DCM(4-(p-phenylene)-2,6-bis(4-phenyl)-2,5-dihydroxy-3-methyl-4H-pyran-4-one) .

6(Coumarine 6) (Quinacridone) 가 ,

(Idemitsu: 出光興山) 가 가

[H. Tokilin, H. Higashi, C. Hosokawa, EP 388, 768(1990)],

가 [Pro. SPIE, 1910, 180(1993)].

가 가 ,

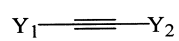
가 .

가 ,

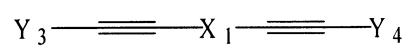
1 () 2 () 1

1, 2 3

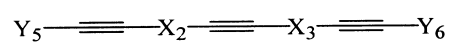
[1]



[2]



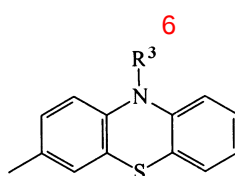
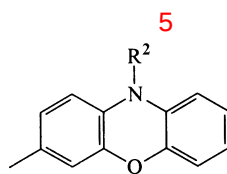
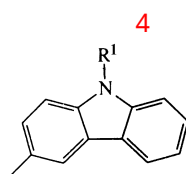
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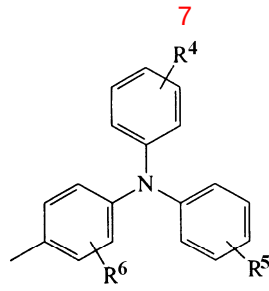


X_1, X_2, X_3

$Y_1, Y_2, Y_3, Y_4, Y_5, Y_6$

4, 5, 6 7





, R¹, R², R³, R⁴, R⁵, R⁶

가 1 5

, t-

가 1 5

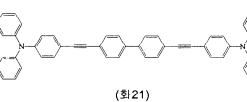
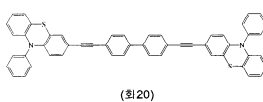
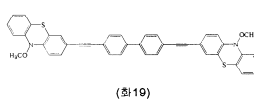
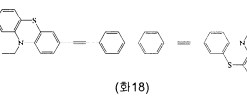
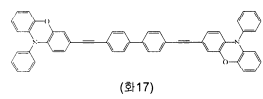
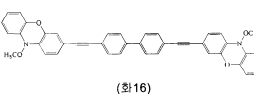
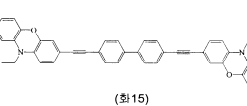
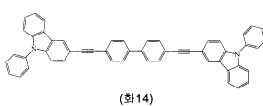
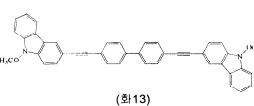
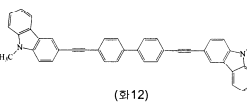
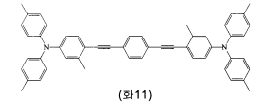
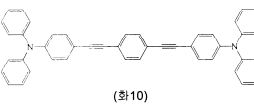
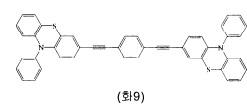
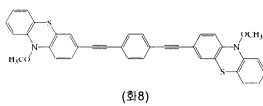
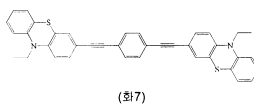
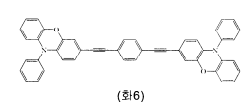
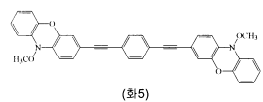
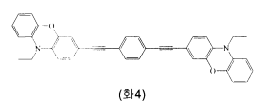
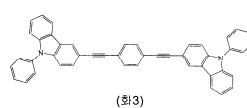
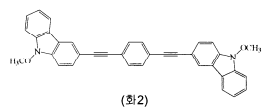
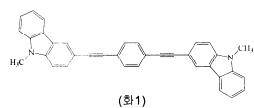
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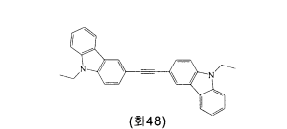
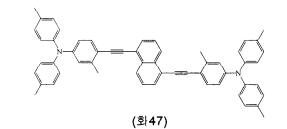
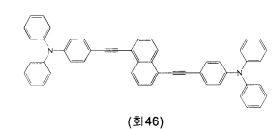
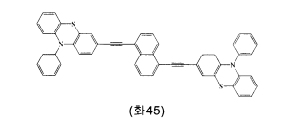
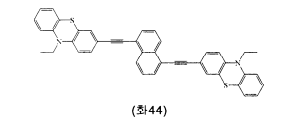
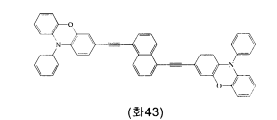
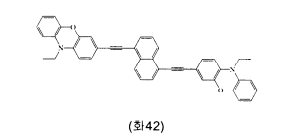
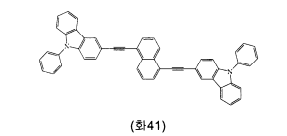
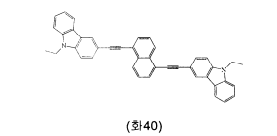
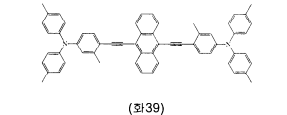
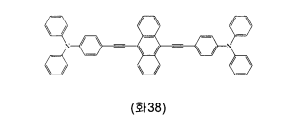
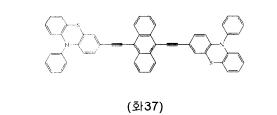
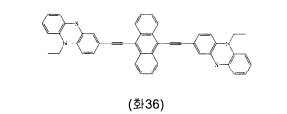
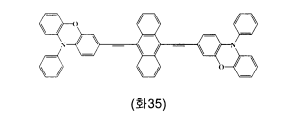
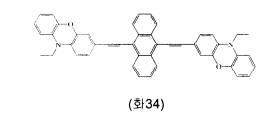
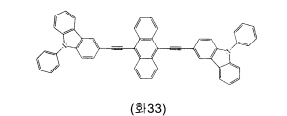
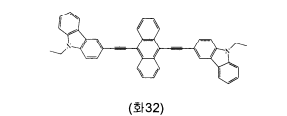
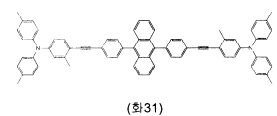
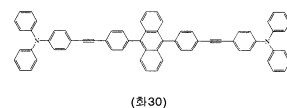
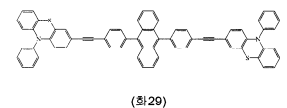
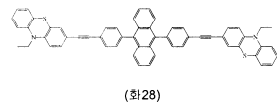
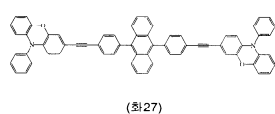
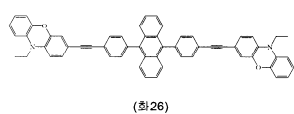
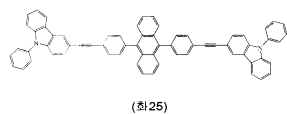
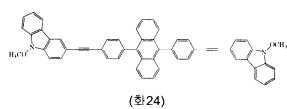
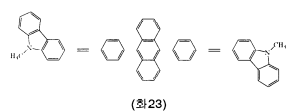
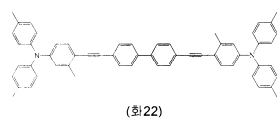
가 6~18

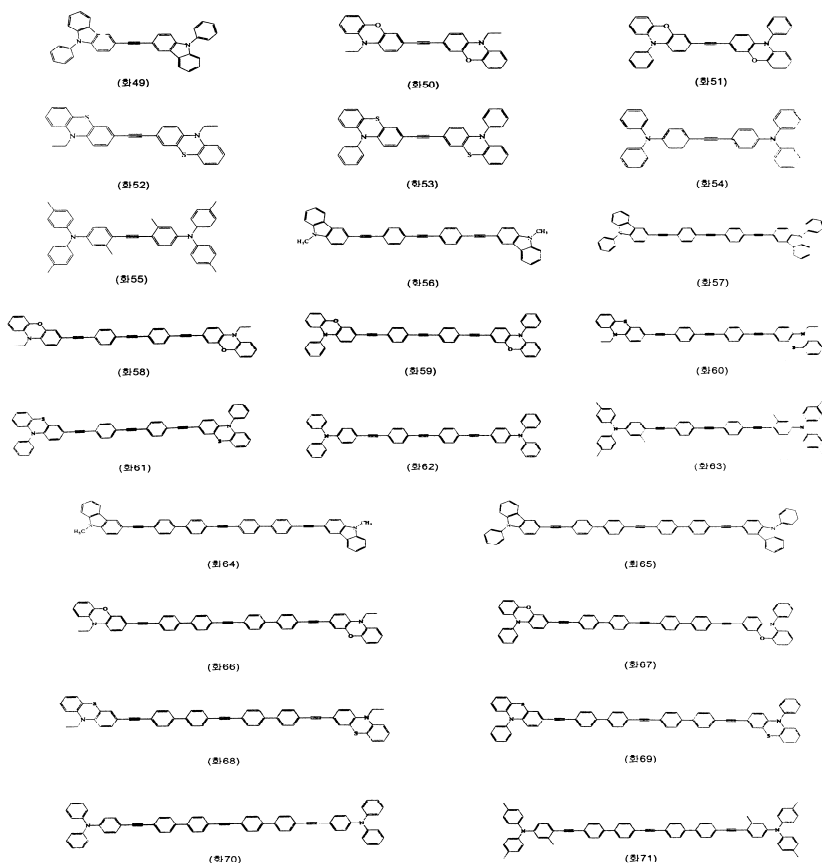
, sec-

, tert-

1 3







1 3 1 () 2 ()

1

1 3

가 가

() () , (1) / , (2) / , (3) / , (4) / , (5) / , (6) / , (7) /

가 4.0 eV

ITO, SnO₂, ZnO, Au

(sputtering)

가 4.2 eV

200 nm Ω/mm 10 nm 1 μm , 50

(6)

(1) (sputtering) (2) (3),
 (4) (6) (7) (8) (5), (6)
 (5) 1 3 1 (dopant) (host)
 3 (host) (dopant) 1

(2) ITO($\text{In}_2\text{O}_3 + \text{SnO}_2$) IZO($\text{In}_2\text{O}_3 + \text{ZnO}$)
 (3) (copper(II) phthalocyanine) (4) NPD(N,N-di
 (naphthalen-1-yl)-N,N'-diphenylbenzidine) 가 가
 (5) BA1q(Bis-(2-methyl-8-quinolinolato)-4-(phenyl-phenolato)-aluminium-(III))
 , Alq3 (6) (6)
 2-(4- -)-5-(4-tert-)-1,3,4-
 가 (Cs, Rb, K, Na, Li) (Li_2O)가
 Mg/Ag, Al, Al/Li, Al/Nd 가

가

[]

[1]

21

1) (4- -)- -

1g(6mmole) 40ml 4- - 1.69g(6mmole) (
) 27mg(0.3mmole), 1,1- () 33mg(0.6mmole), t- 570mg(6
 mmole) 가 24 . 40ml 60ml 2
 (: =1:8)
 900mg(2.8mmole, 46%) .

2) 4-(4- -)-2- - -3- -2-

(4- -)- - 900mg(2.8mmole) 40ml 40ml 2-
 -3- -2- 235mg(2.8mmole) ()- (II) 20mg(0.28mmole),
 10mg(0.56mmole) 가 24 80ml 10
 0ml 2 (: =1:7)
 700mg(2.1mmole, 76%)

3) (4- -)- -

4-(4- -)-2- - -3- -2- 700mg(2.1mmole) 40ml 50
 mg(2.5mmole) 가 5 40ml 60ml 2
 g(2.5mmole, 95%) 670m

4) 21

4,4- 500mg(1.23mmole) 30ml 30ml (4- -
)- - 645mg(2.4mmole) ()- (II) 10mg(0.14mmole),
 10mg(0.56mmole) 가 70 24
 60ml 50
 ml 2 (: =1:7)
 400mg(0.58mmole, 47%)

[2]

54

(4- -)- - 500mg(1.9mmole) 40ml 40ml (
)- (II) 20mg(0.28mmole), 10mg(0.56mmole) 가
 40 12
 80ml 100ml 2
 (: =1:7) 400mg(0.78mmole, 78
 %) 146

[3]

70

1) [4-(4'- - -4-)-]- -

4,4- 500mg(1.23mmole) 30ml 30ml (4- -
)- - 320mg(1.2mmole) ()- (II) 10mg(0.14mmole),
 10mg(0.56mmole) 가 70 24
 60ml 50
 ml 2 (: =1:7)
 400mg(0.73mmole, 59%)

2) 4-[4'-(4- -)- -4-]-2- - -3- -2-

[4-(4'- - -4-)-]- - 700mg(1.3mmole) 40ml
 40ml 2- -3- -2- 110mg(1.3mmole) ()- (II) 20mg
 (0.28mmole), 10mg(0.56mmole) 가 24 80ml
 100ml 2 (: =1:7) 400mg(0.79mmole, 61%)

3) [4-(4'- - -4-)-]- -

4-[4'-(4- -)- -4-]-2- - -3- -2- 500mg(1mmole) 40ml
 40mg(2mmole) 가 5 40ml

60ml 2
400mg(0.9mmole, 90%)

4) 70

[4-(4'- - -4-)-]- 300mg(0.55mmole) 30ml
30ml [4-(4'- -4-)-]- 245mg(0.55mmole) ()
(II) 20mg(0.28mmole), 20mg(1.12mmole) 가
70 24 60ml
50ml 2
(: =1:7) 380mg(0.44mmole, 80%)

1 3

1 3

[]

[1]

1(54)

, BAlq

ITO

(CuPc)

30nm

NPD[N,N-di(naphthalen-1-yl)-N,N'-diphenylbenzidine] 50 nm

, BAlq()

54

()

1.0%

30 nm

(Alq3; 40nm),

(Li₂O; 25nm)

(Mg/Ag; 100 nm)

1

가

가

, 442 nm
3,600 cd/m²

1.2 lm/W

, 8V

[2]

3(70)

, BAlq

ITO가

(CuPc)

30nm

NPD[N,N-di(naphthalen-1-yl)-N,N'-diphenylbenzidine] 50 nm

, BAlq()

70

()

1.0%

30 nm

(Alq3; 40nm),

(Li₂O; 25nm)

(Mg/Ag; 100 nm)

2

가

가

, 468 nm
2,800 cd/m²

1.0 lm/W

, 7.8V

[3]

23

(2)

, 21

(2)

ITO

(CuPc)

30nm

NPD[N,N-di(naphthalen-1-yl)-N,N'-diphenylbenzidine] 50 nm

, (23)()

(21)()

()

1.0%

30nm

(Alq3; 40nm),

(Li₂O; 25nm)

(Mg/Ag; 100 nm)

3
494 nm
2,700 cd/m²
가
0.8 lm/W
가
7.5V
1 3 1

[1]

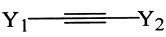
			가 (V)	(cd/m ²)	(lm/W)	
1	BAIq	54	8	3,600	1.2	442 nm
2	BAIq	70	7.8	2,800	1.0	468 nm
3	23	21	7.5	2,700	0.8	494 nm

가
가
.

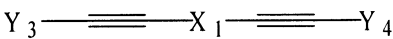
(57)

1.
1 3

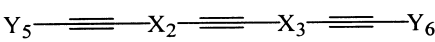
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[2]

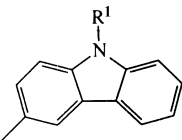


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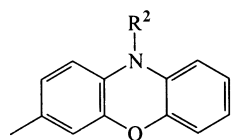


X₁, X₂ X₃
Y₁, Y₂, Y₃, Y₄, Y₅ Y₆
4, 5, 6 7

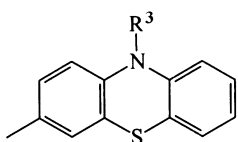
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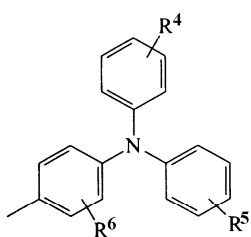
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[6]



[7]

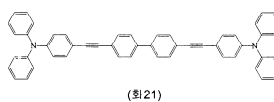
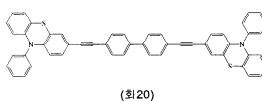
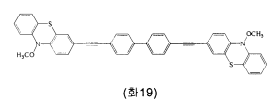
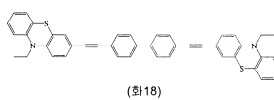
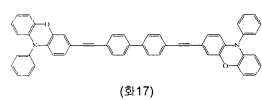
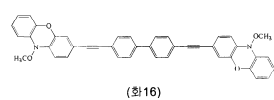
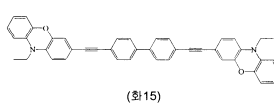
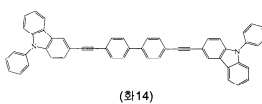
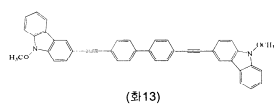
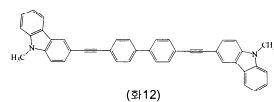
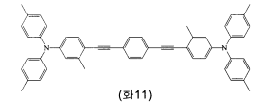
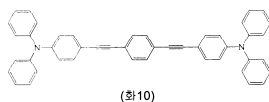
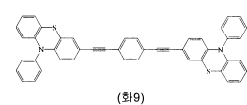
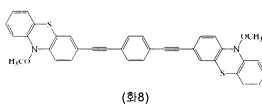
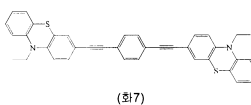
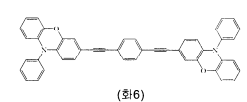
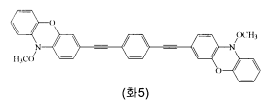
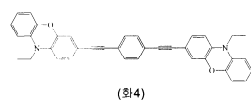
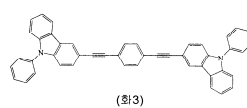
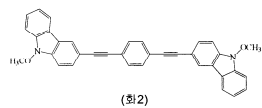
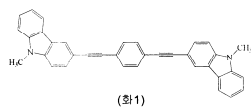


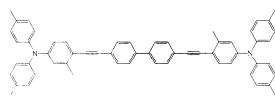
, R 1 , R 2 , R 3 , R 4 , R 5 R 6

2.

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1 3

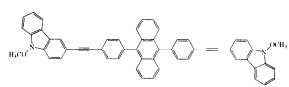




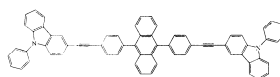
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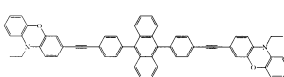
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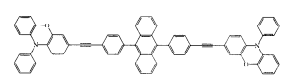
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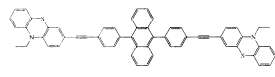
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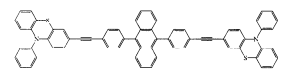
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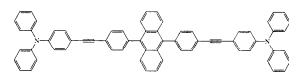
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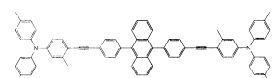
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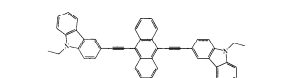
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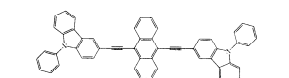
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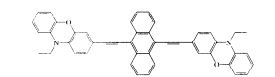
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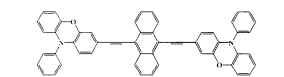
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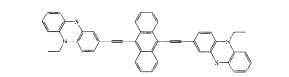
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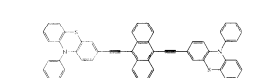
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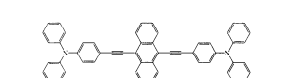
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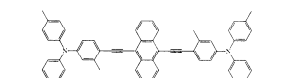
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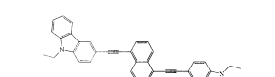
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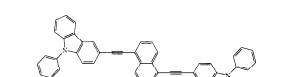
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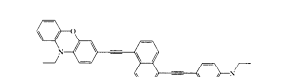
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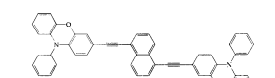
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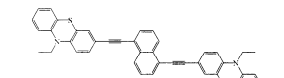
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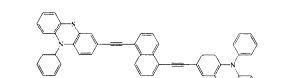
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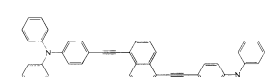
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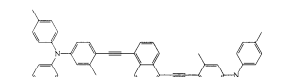
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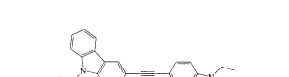
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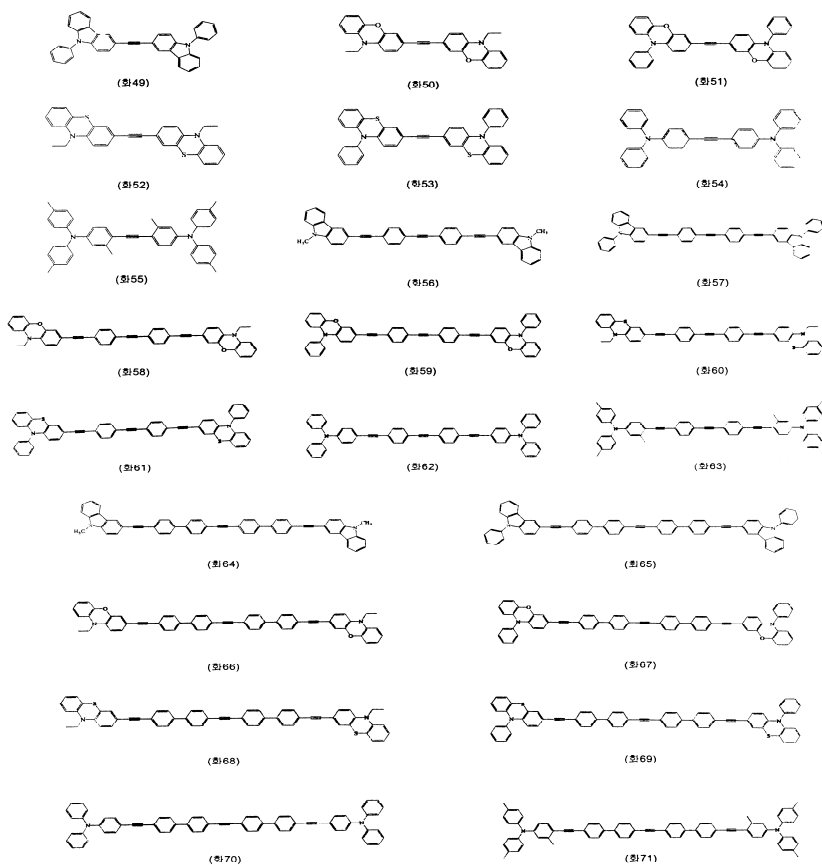
(화46)



(화47)



(화48)



3.

1 () 2 ()
1 1 2
, 1 3

4.

3 , , , ,

5.

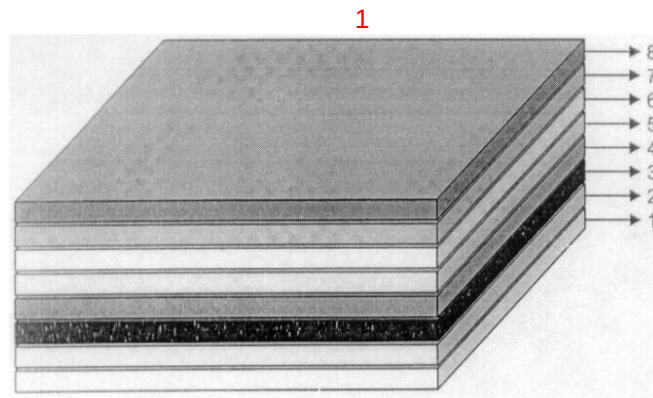
4 , 1 2 1

6.

4 , 1 2 1

7.

4 , 1 2 1



专利名称(译)	用于有机电致发光器件的蓝色发光化合物和使用其的有机电致发光器件		
公开(公告)号	KR1020040060259A	公开(公告)日	2004-07-06
申请号	KR1020020086805	申请日	2002-12-30
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	TAK YOONHEUNG 탁윤희 HAN YOONSOO 한윤수 KIM KIDONG 김기동 KIM SANGDAE 김상대 KIM YONGKWAN 김용관		
发明人	탁윤희 한윤수 김기동 김상대 김용관		
IPC分类号	C09K11/06		
CPC分类号	C09K11/06 C09K2211/1014 C09K2211/1033 C09K2211/1037 H01L51/0071 H01L51/0072 H01L51/5012 H05B33/14 Y10S428/917		
代理人(译)	CHOI, KYU PAL 赵熙妍		
其他公开文献	KR100471365B1		
外部链接	Espacenet		

摘要(译)

本发明涉及用于有机电致发光器件的发蓝光发光化合物和使用其的有机电致发光器件，提供用于有机电致发光器件的发蓝光发光化合物，其在下列化学式1至3中表示，其中同时引入共轭效应小于双键的三键，通过提供使用其的有机电致发光器件，与现有蓝色材料相比，具有高光稳定性和量子效率的有机电致发光器件可以提亮。等式中的Y 1至Y 6和X 1至X 3如说明书中所定义。

