

(19) (KR)  
(12) (B1)

|                                            |                 |                      |                                        |
|--------------------------------------------|-----------------|----------------------|----------------------------------------|
| (51) 。 Int. Cl. <sup>7</sup><br>C09K 11/06 |                 | (45)<br>(11)<br>(24) | 2004 03 31<br>10-0425360<br>2004 03 19 |
| (21)                                       | 10-2002-0000244 | (65)                 | 10-2003-0059646                        |
| (22)                                       | 2002 01 03      | (43)                 | 2003 07 10                             |

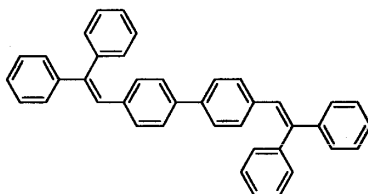
|      |                   |
|------|-------------------|
| (73) | 557-6             |
| (72) | 956-2 APT306-1404 |
| (74) |                   |
| (54) |                   |

，  
1  
2  
1  
2  
1  
X  
R<sub>1</sub> R<sub>2</sub>  
R<sub>3</sub>  
SO<sub>2</sub> R, CO<sub>2</sub> R, SR, OR, NR<sub>2</sub>, CN,  
R<sub>1</sub> 10 가  
1

1  
2

/  
(Organic Electroluminescence device; OLED)  
( ) ( )  
가 , LCD  
가 ,  
가 ,  
가 ,  
가 ,  
가 ,  
(conjugated) (host) (ph  
enanthrene), (pyrene), (benzopyrene), (chrisene), (picene), (carbazole),  
(fluorene), (biphenyl), (terphenyl), (quarterphenyl), (triphenylen  
oxide), (dihalobiphenyl), (transstilbene), 1,4- (diphenyl butadiene)  
가 1 $\mu$ m  
가  
(550nm) (Alq3: aluminum-tris(8-hydroxyquinolin  
ate), 4,539,507 5,150,006 ), BeBq2 (10-benzo[h]quinolinol- beryllium complex  
. Chemistry Letters(1993), 905-906 ), Almq (tris(4-methyl-8-quinolinolate)aluminum), Zn(BTZ)<sub>2</sub>, Zn(  
NBTZ)<sub>2</sub>, An(Oc-BTAZ)<sub>2</sub> (Jpn, J. Appl. Phys. Vol. 35 (1996), 1339-1341) (460n  
m) ZnPBOX (Chemistry Letters(1994), 1741-1742), Balq (Bis(2-methyl-8-quinolin  
olato)(para-phenyl-phenolato)aluminum) (styrylarylene)  
DPVBi (1,4-bis (2,2-diphenyl-vinyl)biphenyl) BczVBi (4,4'-Bis((2-carbazole)vinylene)biphenyl)  
(590nm) 4-( )-2- -6-(p- )-  
4H- (4-(dicyanomethylene)-2-methyl-6-(p-dimethyl aminostyryl)-4H-pyran: DCM)  
가  
(guest-host)  
1 DPVBi  
( 5,503,910 5,536,949 )

1



DPVBi

2

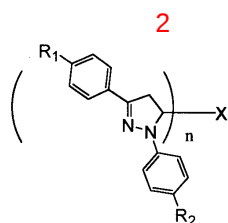
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2

1

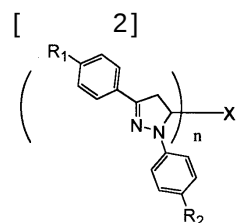
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2

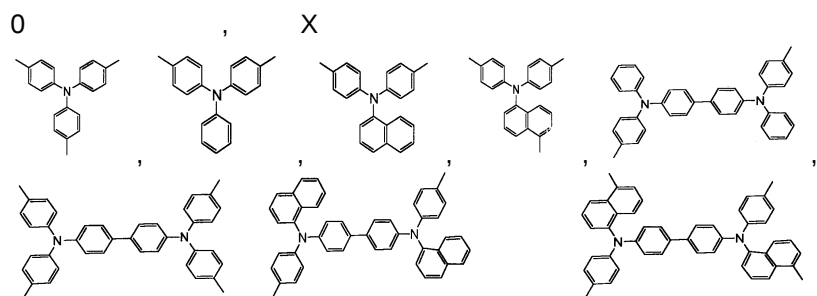


2

4, X, R<sub>1</sub>, R<sub>2</sub>, SO<sub>2</sub>R, CO<sub>2</sub>R, SR, OR, NR<sub>2</sub>, CN, R<sub>3</sub>, SO<sub>2</sub>R, CO<sub>2</sub>R, SR, OR, NR<sub>2</sub>, R<sub>1</sub>, 10, 가



6, X, 14, 가, 3, 가, 18, 50, 3, 1



2, n, R<sub>1</sub>, R<sub>2</sub>, (F, Cl, Br, I), 10, R<sub>3</sub>, SO<sub>2</sub>R, CO<sub>2</sub>R, SR, OR, NR<sub>2</sub>, CN, R<sub>1</sub>, 1

(pyrazoline)

(linkage)

(dimer),

(trimer),

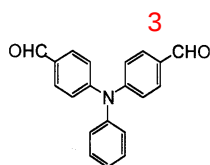
(tetramer)

(m.p.) 60 180, 가

(Tg) , 100 ,  
 , 400nm 480nm , .

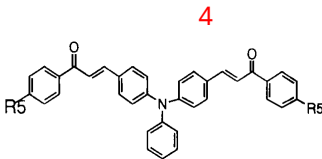
2 X 3 3 (DMF), POCl<sub>3</sub>  
 가 3 (vilsmeier reagent), DMF POCl<sub>3</sub>  
 , (n)  
 , α, β  
 , 1  
 (hole injection, ) (10) 가 1 (12)  
 (electron injection, ) (14) (12) 가 2 (16)  
 1 2 (12, 16) 가 1 2 (12, 16) 가  
 (14) (14) (12) (10) 1 (12)  
 (10) 1 (12)  
 (12) 2 (16) Al, Mg, Ca (Indium Tin Oxide; ITO), (Ag)  
 Li-Al, Mg-Ag , 2  
 1 2 (12, 16) 가 (14) , 1 2 (12,  
 16) (14) (21, 22) (25, 26)  
 1 (21, 22) (12)  
 (21) 4,356,429 (porphyrinic)  
 (22) m-MTDATA(4,4',4''- (3- ) )  
 , α-NPD(N,N'- -N,N'- (α - )-[1,1'- ]4,4'- )  
 가 (25, 26)  
 (16)  
 Alq3) (14), (8- ) ( )  
 (21, 22) 5 500nm 가 (25, 26)  
 (14) / (14) /  
 (22) 1 2 (12, 16) (22)  
 1 2 , -

[ 1-10]  
 10g N,N- (DMF) 80mL 10 0  
 , 0 5 (POCl<sub>3</sub>) 69g(10eq) 가 . 가가 , 90  
 24 , 1000mL  
 가 , 1 3 가  
 3 70% . (H NMR data(400MHz, CDCl<sub>3</sub>) δ 9.9 (s, 2H, CHO), δ 7.8 (d, 4H), δ 7.4 (t, 2H), δ 7.3 (t, 1H), 7.2 (multi, 6H))

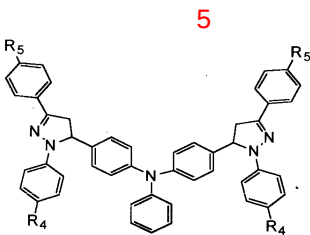


3 3g 30mL 4- 가 R<sub>5</sub> 2.5g

1.67g 24 4.5g( 90%) . (H NMR data(400MHz, CDCl<sub>3</sub>) δ 8.0 (d, 4H), δ 7.7 (d, 2H), δ 7.5 (m, 12H), δ 7.3 (t, 2H), δ 7.15 (t, 6H), δ 7.1(d, 4H))



q) 100mL, 12 6g 4- 가 R<sub>4</sub> (phenylhydrazine) 5.2g(4e 5 1.6g . (H NMR data(400MHz, CDCl<sub>3</sub>) δ 7.7 (d, 4H), δ 7.3 (m, 7H), δ 7.2 (m, 8H), δ 7.1 (d, 4H), δ 7.05 (d, 2H), δ 7.0 (d, 4H), δ 6.8 (t, 3H), DSC data : m.p. = 230 , Tg = 110 )



5 R<sub>5</sub> R<sub>4</sub> 1 PL(photoluminescence) 1(Me )

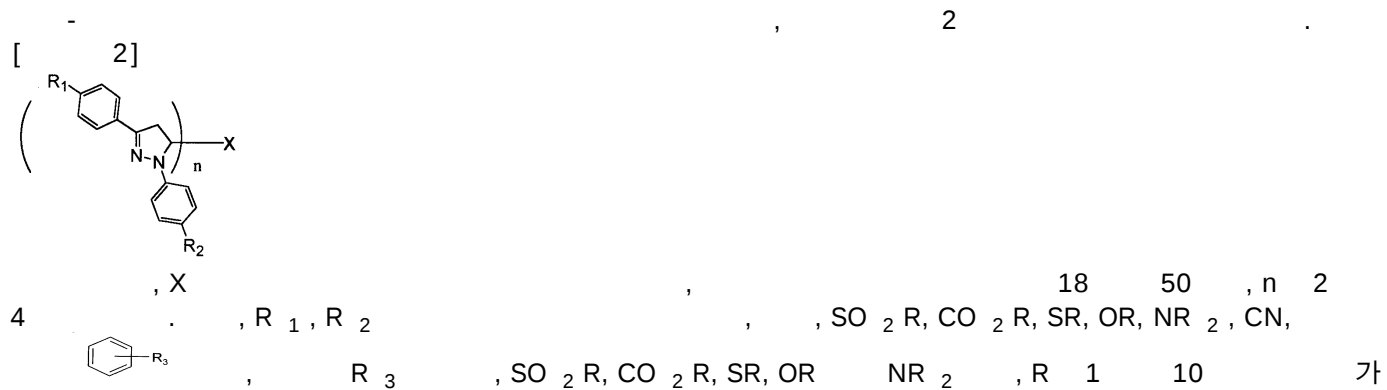
[ 1]

| No | R <sub>4</sub>     | R <sub>5</sub>     | absorption(λ <sub>max</sub> ) | Fluorescence(λ <sub>max</sub> ) |
|----|--------------------|--------------------|-------------------------------|---------------------------------|
| 1  | H                  | H                  | 356 nm                        | 430 nm                          |
| 2  | NH <sub>2</sub>    | H                  | 375 nm                        | 484 nm                          |
| 3  | OMe                | H                  | 366 nm                        | 450 nm                          |
| 4  | SMe                | H                  | 366 nm                        | 465 nm                          |
| 5  | CO <sub>2</sub> Me | H                  | 364 nm                        | 405 nm                          |
| 6  | SO <sub>2</sub> Me | H                  | 355 nm                        | 410 nm                          |
| 7  | H                  | NH <sub>2</sub>    | 350 nm                        | 430 nm                          |
| 8  | H                  | OMe                | 360 nm                        | 465 nm                          |
| 9  | H                  | CO <sub>2</sub> Me | 355 nm                        | 465 nm                          |
| 10 | H                  | SO <sub>2</sub> Me | 390 nm                        | 460 nm                          |

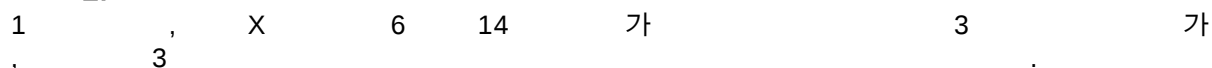
가 1 [ 11] (ITO)가 ITO α -NPD 500 m-MTDATA 150 300 600 Alq3 Mg-A 5 g 2000 230cd/m<sup>2</sup> 465nm , 2.7 lm/w (lumen/watt)

(57)

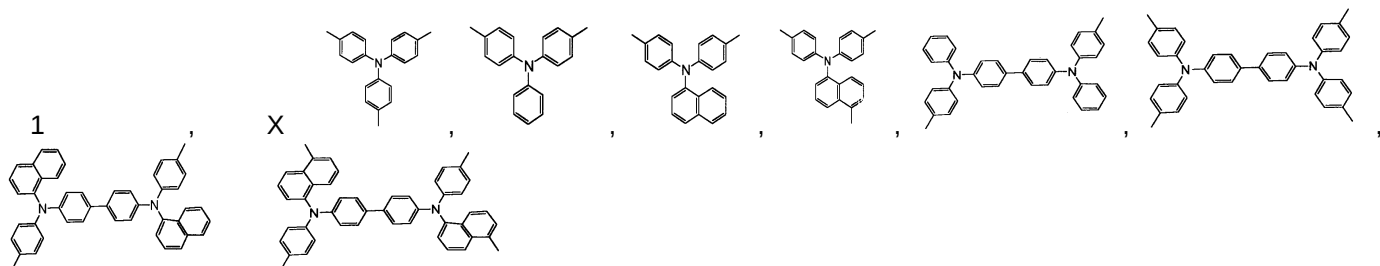
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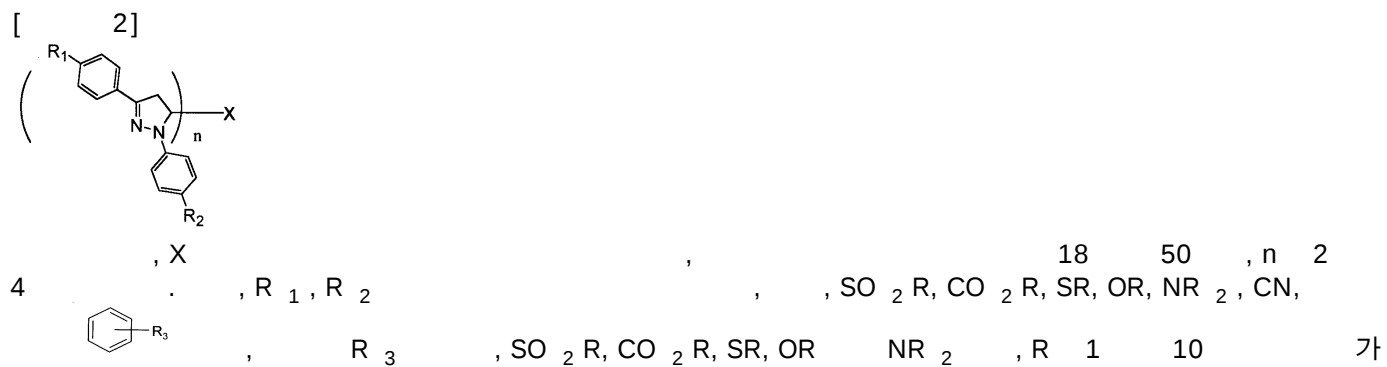
2.



3.



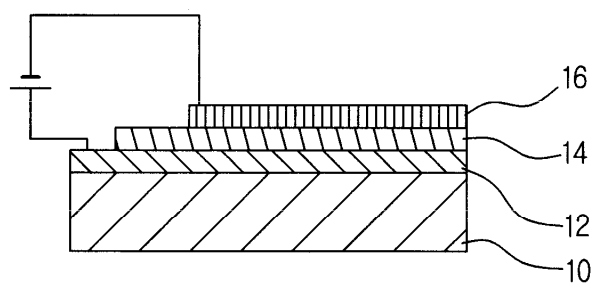
4.



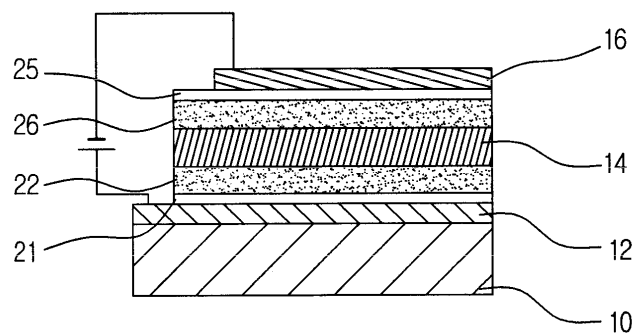
5.



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2



|                |                                                                                                                                       |         |            |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------|---------|------------|
| 专利名称(译)        | 含有吡唑啉基的有机发光化合物和使用其的有机电致发光器件                                                                                                           |         |            |
| 公开(公告)号        | <a href="#">KR100425360B1</a>                                                                                                         | 公开(公告)日 | 2004-03-31 |
| 申请号            | KR1020020000244                                                                                                                       | 申请日     | 2002-01-03 |
| [标]申请(专利权)人(译) | 娜我比可隆株式会社                                                                                                                             |         |            |
| 申请(专利权)人(译)    | Neoview的隆有限公司                                                                                                                         |         |            |
| 当前申请(专利权)人(译)  | Neoview的隆有限公司                                                                                                                         |         |            |
| [标]发明人         | KIM KISEOK                                                                                                                            |         |            |
| 发明人            | KIM,KISEOK                                                                                                                            |         |            |
| IPC分类号         | C09K11/06                                                                                                                             |         |            |
| CPC分类号         | C09K11/06 C09K2211/1022 C09K2211/1044 C09K2211/186 H01L51/0067 H01L51/0081 H01L51/5012 H01L51/5056 H01L2251/308 H05B33/14 Y10S428/917 |         |            |
| 代理人(译)         | 李相HUN                                                                                                                                 |         |            |
| 其他公开文献         | KR1020030059646A                                                                                                                      |         |            |
| 外部链接           | <a href="#">Espacenet</a>                                                                                                             |         |            |

#### 摘要(译)

本发明提供了由以下化学式表示的本发明的新结构的有机发光化合物，涉及包含用作有机电致发光器件的发光层和/或空穴传输层的吡唑啉基的有机发光化合物。耐热性高。此外，本发明提供一种有机电致发光器件，其包括至少一个有机化合物层，该有机化合物层包括作为第二电极的高功函数的有机化合物或具有第一电极的化学式1，并且具有低功函数且是位于第一和第二电极之间。在上式中，X可以是n为2至4的固定数，芳基的总碳数为18至50，它是至少一个与氮结合的芳基。另外，R<sub>1</sub>和R<sub>2</sub>为氢，相同，R<sub>3</sub>为SO<sub>2</sub>R，CO<sub>2</sub>R，SR，OR，NR<sub>2</sub>，CN，卤素或为具有氢的烷基，SO<sub>2</sub>R，CO<sub>2</sub>R，SR，OR或NR<sub>2</sub>，R为1至10的碳数。有机发光化合物，有机电致发光器件，耐热性，空穴传输层，吡唑啉衍生物。

