

(19)
(12)

(KR)
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G02F 1/13

(11)
(43)

2003 - 0022431
2003 03 17

(21) 10 - 2001 - 0050408
(22) 2001 08 21

(71) 20

(72) 2 998 - 1

2 1506

(74)

:

(54) 가

(epoxy group) 가

(discotic)

가

1

2
가

1

2

2

1

2

*

111 : 1 112 : 2

113 : 114 :

115 : 116 :

117 : 117a :

117b : 118 :

119 : 131 :

132 : 133 :

140 : 141 :

150 :

(LCD ; Liquid Crystal Display Device)

가

TV,

(TN : Twisted Nematic)

가

가 90°

가

(contrast)

TN

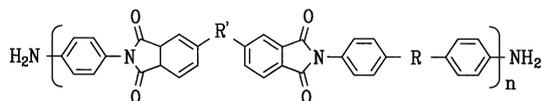
1

(50) , 1 , 2 (11,12)

1 , 2 (11,12) , (42) , (42)

1, 2 (11,12) (51,52)
) (17) , 1 (11) ()
 , 2 (12) (17) 가 (19)
 (31) , (31) R,G,B (32) , (32)
 (19) 가 (33)
 , (19) 가 (33) 가 1, 2 (13a,13b)
 (polyimide) 가
 (polyimide)
 가
 , (42) TN
 (uni - axial film), (bi - axial film) (wide view film)
 (discotic)
 , (positive uniaxial) (extraordinary refractive index)
 (ordinary refractive index) , (negative uniaxial)
 (42) (51,52)
 , TN 가 ,
 , 가
 , 가

(discotic) 가 (epoxy group) 가
 , 가 1 2 가
 , 가
 2
 , 1 (polyimide)
 1



, 2,5 - (diaminobenzonitrile), 2 - () - 1,4 - (2
 - (trifluoromethyl) - 1,4 - benzenediamine), p - (p - phenylenediamine), 2 - - 1,4 -
 (2 - chloro - 1,4 - benzenediamine), 2 - - 1,4 - (2 - fluoro - 1,4 - benzenediamine), m -
 (m - phenylenediamine), 2,5 - (2,5 - diaminotoluene), 2,6 - (2,6 - diami
 notoluene), 4,4' - (4,4' - diaminobiphenyl), 3,3' - - 4,4' - (3,3' - dimethyl -
 4,4' - diaminobiphenyl), 3,3' - - 4,4' - (3,3' - dimethoxy - 4,4' - diaminobiphenyl),
 (diaminodiphenylmethane), (diaminodiphenyl ether), 2,2 -
 (2,2 - diaminodiphenylpropane), (3,5 - - 4 -) (bis(3,5 - diethyl - 4 - aminophenyl)
 methane), (diaminodiphenylsulfone), (diaminonaphthalene), 1,4 - (4 -
) (1,4 - bis(4 - aminophenoxy)benzene), 4,4' - (4,4' - diaminobenzophenone),
 3,4' - (3,4' - diaminobenzophenone), 1,4 - (4 -) (1,4 - bis(4 - aminophenyl)
 benzene), 9,10 - (4 -) (9,10 - bis(4 - aminophenyl)anthracene), 4,4' - (4 -
) (4,4' - bis(4 - aminophenoxy)diphenylsulfone), 2,2 - [4 - (4 -)] (2,2
 - bis[4 - (4 - aminophenoxy)phenyl]propane), 2,2 - (4 -) (2,2 - bis(4 - amino
 phenyl)hexafluoropropane), 2,2 - [4 - (4 -)] (2,2 - bis[4 - (4 - aminoph
 enoxy)phenyl]hexafluoropropane), (4 -) (bis(4 - aminocyclohexyl)methane)
 (alicyclic diamine), (tetramethylene diamine), (hexam
 ethylene diamine) (aliphatic diamine), (3 -) (bis(3 - am
 inopropyl)tetramethyldisiloxane) (diaminosiloxane),

(pyromellitic dianhydride), 2,3,6,7 -
 (2,3,6,7 - naphthalenetetracarboxylic dianhydride), 1,2,5,6 -

(1,2,5,6 - naphthalenetetracarboxylic dianhydride), 1,4,5,8 -
 (1,4,5,8 - naphthalenetetracarboxylic dianhydride), 3,3',4,4' -
 (3,3',4,4' - biphenyltetracarboxylic dianhydride), 2,3,2',3' -
 (2,3,2',3' - biphenyltetracarboxylic dianhydride), (3,4 -) (bis(3,4 - dicarboxyphenyl)ether dianhydride), (3,4 -) (bis(3,4 - dicarboxyphenyl)diphenylsulfone dianhydride), (3,4 -) (bis(3,4 - dicarboxyphenyl)methane dianhydride), 2,2 - (3,4 -) (2,2 - bis(3,4 - dicarboxyphenyl)propane dianhydride), 1,1,1,3,3,3 - - 2,2 - (3,4 -) (1,1,1,3,3,3 - hexafluoro - 2,2 - bis(3,4 - dicarboxyphenyl)propane dianhydride), (3,4 -) (bis(3,4 - dicarboxyphenyl)dimethylsilane dianhydride), 2,3,4,5 - (2,3,4,5 - pyridinetetracarboxylic dianhydride), 1,2,3,4 - (1,2,3,4 - butanetetracarboxylic dianhydride), 1,2,3,4 - (1,2,3,4 - cyclobutanetetracarboxylic dianhydride), 1,2,3,4 - (1,2,3,4 - cyclopentanetetracarboxylic dianhydride), 1,2,4,5 - (1,2,4,5 - cyclohexanetetracarboxylic dianhydride), 2,3,5 - (2,3,5 - tricarboxycyclopentylacetic acid dianhydride), 3,4 - - 1,2,3,4 - (3,4 - dicarboxy - 1,2,3,4 - tetrahydro - 1 - naphthalenesuccinic dianhydride)
 e) Cl - , F - .

가

(aliphatic long - chain) 가

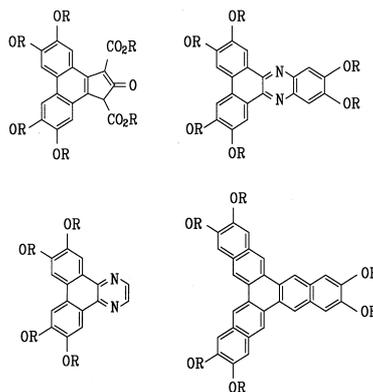
(oligomer)

(epoxy)

가

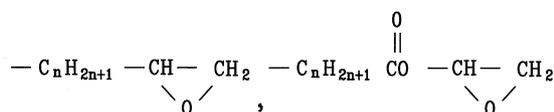
2

2



, R

가



(n) .
 , 가 가 가
 가 , 가 .
 , NMP(N - methylpyrrolidinone), - (- butyllactone), BC(Butyl Cellosolve)
 , 1 30wt% .
 가 .
 1 1 , 2 2
 , 1 (111) () (114)
 / (on/off)
 (119) .
 , (114) , (114)
 (115) , (114) (117a,117b) (116) ,
 (117) / (116)
 n⁺ a - Si .
 , 2 (112) (131) , (131)
 R,G,B (132) , (119) (150) 가
 (133) .
 , 1 (111) 2 (112) 가
 (discotic) , .
 , 가 N
 MP, - butyllactone, BC 1 30wt% .
 , 가 가
 , 가 가 ,
 가
 , (113) .
 , (113) 1 (111) 가 (1
 41) 2 (112) (140) , 1 , 2 (111,112)

(150)

가

가 , 가 (chiral dopant) 가 가 .

가 .

, TN(twisted nematic), STN (super twisted nematic), OCB(optically compensated birefringence), VA(vertical alignment), FLC(ferroelectric liquid crystal display), AFLC(Anti - ferroelectric Liquid Crystal), PDLC(polymer dispersed liquid crystal display), a - Si TFT, poly - Si TFT, MIM(metal - insulator - metal)

가

가

가

가 가

가

가

가

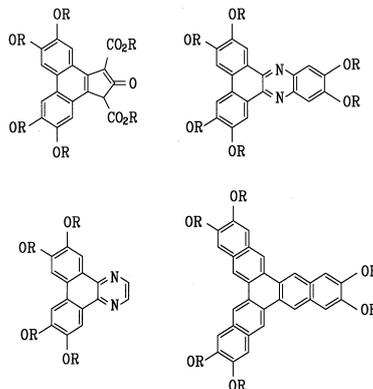
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1.

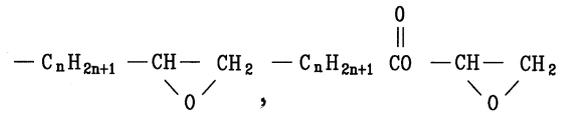
(epoxy group) 가

(discotic) 가

가



, R

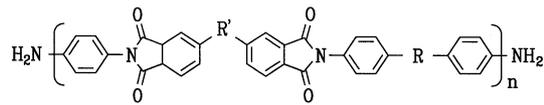


, n . 1

2.

1 , (discotic) 1
가 .

[1]



3.

2 , 가

4.

1 2 ,

1 2 가

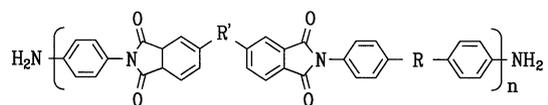
5.

4 , 1

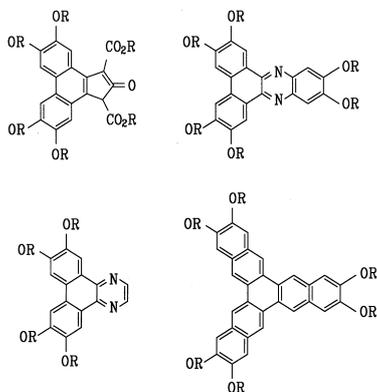
6.

1 , 1 2

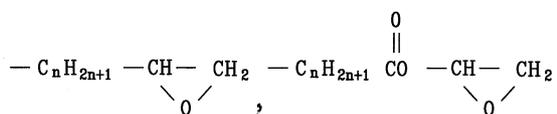
[1]



[2]



, R



, n

7.

6

(dianhydride)

(diamine)

8.

6

(aliphatic long - chain) 가

9.

4

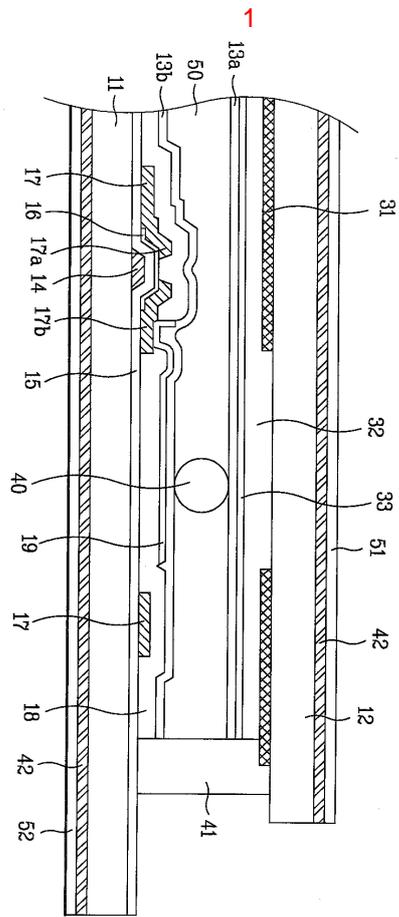
2

10.

4

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2



2

