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(21) 10-2004-0010270  
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(72) ,  
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(74)

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(54) ,

$1 \times 10^{-13} \text{ Pa}^{-1}$  , S(td)가 -1 1%  
t가 70 400nm  
C(md)<C(td) , 80 , 90% RH 50  
| S(md) | > | S(td) | , 1 R<sub>0</sub> 20  
C(md), C(td)가  $1 \times 10^{-9}$   
70nm , S(md) 2 R

$$R_o = (n_x - n_y) \times d$$

$$R_t = \{ (n_x + n_y) / 2 - n_z \} \times d$$



[ 1 ] C(md), C(td)가  $1 \times 10^{-9}$   $1 \times 10^{-}$   
 $13 \text{ Pa}^{-1}$  C(md) < C(td) , 1 (R<sub>0</sub>)가  
 20 70nm , 2 (R<sub>t</sub>)가 70  
 400nm , 80 , 90% RH 50  
 S(md), S(td)가 -1 1% | S(md) | > | S(td) | .

[ 1 ]

$$R_0 = (n_x - n_y) \times d$$

[ 2 ]

$$R_t = \{ (n_x + n_y) / 2 - n_z \} \times d$$

, nx (遲相軸) ( ) , ny (進相軸) ( )  
 ) , nz , d .

[ 2 ] [ 1 ] , 1 .

[ 3 ] [ 1 ] [ 2 ] , 가 4 5 .

$$2.55 \leq X + Y \leq 2.85$$

$$1.4 \leq X \leq 2.85$$

, X , Y ( ) .

[ 4 ] [ 1 ] [ 3 ] , 가 5  
 9.0 61.5% , 100 2 가 0.1 20

[ 5 ] [ 1 ] [ 4 ] ,  
 가 .

[ 6 ] [ 1 ] [ 5 ] , 가

[ 7 ] 2 , 1 [ 1 ] [ 6 ]

[ 8 ] [ 7 ] 가 .

가 가 가 . 가  
 R<sub>0</sub>)가 20 ( 70nm , ) (R<sub>t</sub>)가 70 400nm . (

가  
Y)가 2.55 X+Y 2.85, 1.4 X 2.85 (X), ( ) (

100 가 59.0 61.5% 2 가  
0.1 20

가

( )

(td)

(md)

가

, td  
가

md

가

가

가

$\pm 1^\circ$   
80

100°

, 85°

, 90°  
95° 가

가  
 $\pm 10^\circ$   
, 90°

가  
가

$\pm 3^\circ$

[ ]

(

).

(1) :

가

가

, 0

가



, 40 120 50 200N  
 td , | S(md) | > | S(td) |  
 , td 가 , 400  
 $0 \times 10^{-14}$  , C(td) × | S(td) | < 5.  
 ) | < C(md) × | S(md) | 가 C(td) × | S(td) |  
 D ( : Pa<sup>-1</sup> ) , S(td) TD ( : %) , C(md) MD  
 ( : Pa<sup>-1</sup> ) , S(md) MD ( : %)

(6) :  
 가 2 % , 0.4 %

$$(\%) = \{(M - N) / N\} \times 100$$

, M , N M 110 3

10 75μm가 , 10 60μm가 , 10 40μm가  
 가

[ ]

300,000 , 80,000 200,000 가 60,000

:

: MPW × 1( )

: 0.2 / %

: 1.0Mℓ/

: 300μℓ

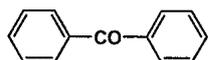
: (Mw=188, 200)

: 23 .

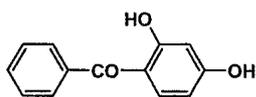




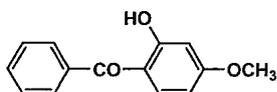
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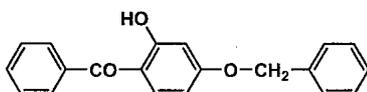
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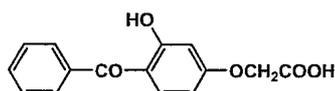
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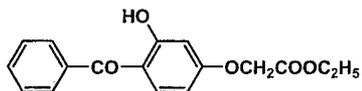
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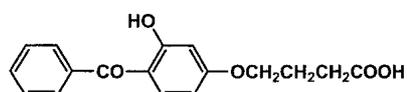
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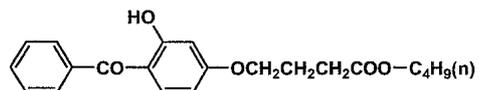
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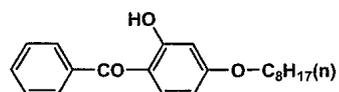
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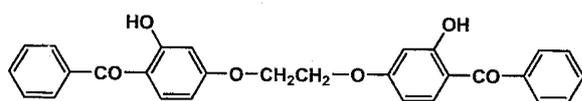
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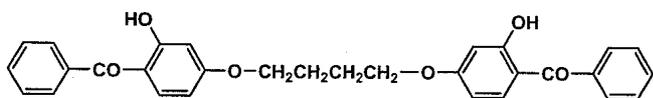
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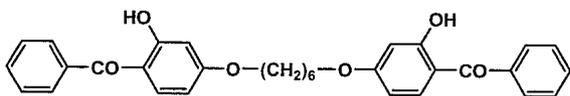
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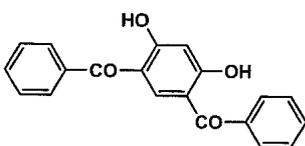
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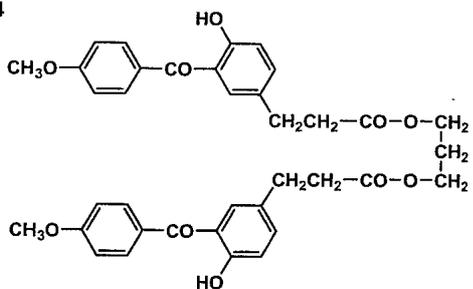
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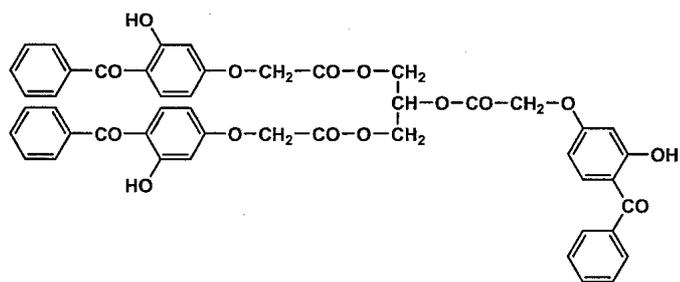
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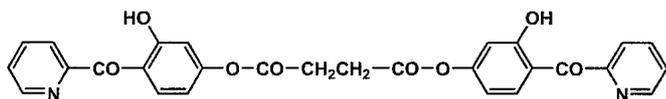
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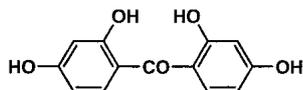
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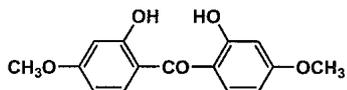
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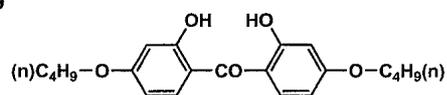
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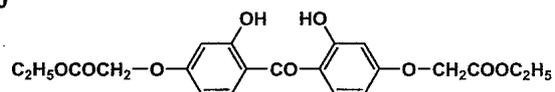
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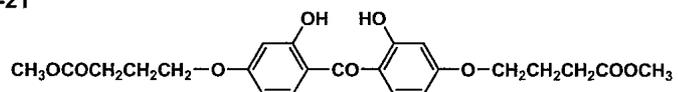
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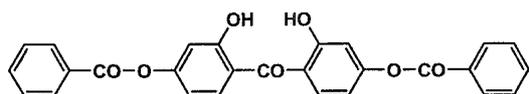
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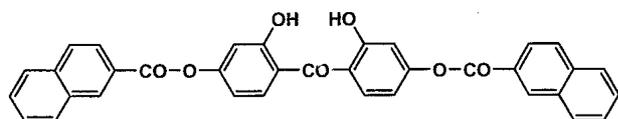
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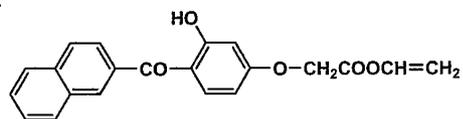
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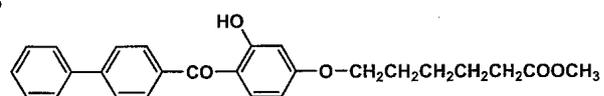
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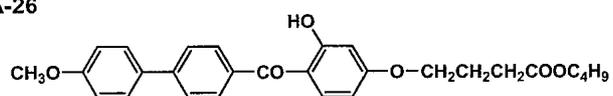
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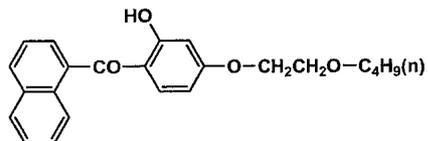
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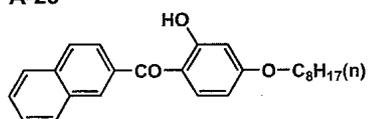
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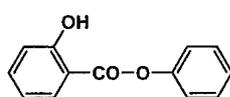
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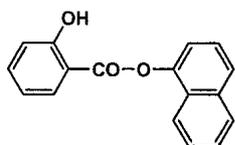
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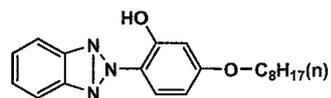
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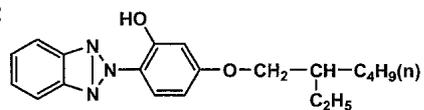
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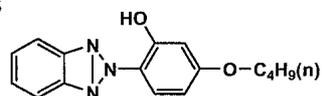
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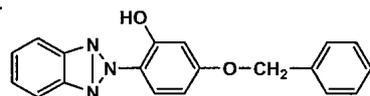
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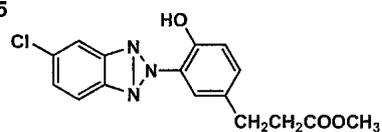
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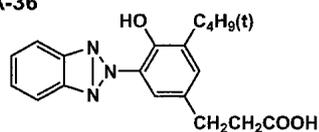
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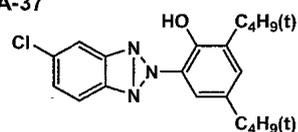
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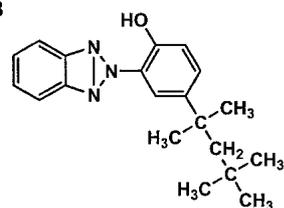
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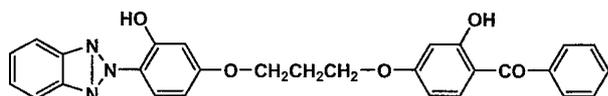
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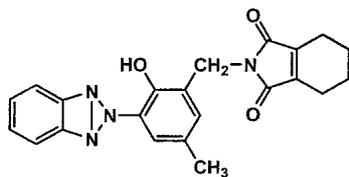
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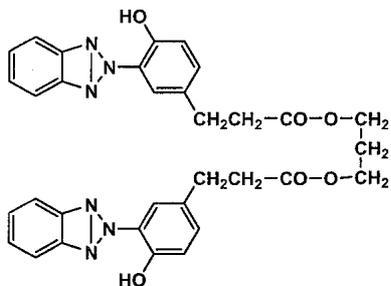
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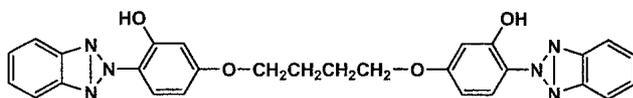
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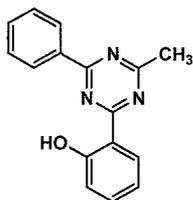
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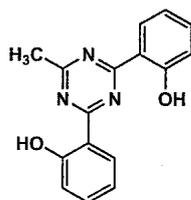
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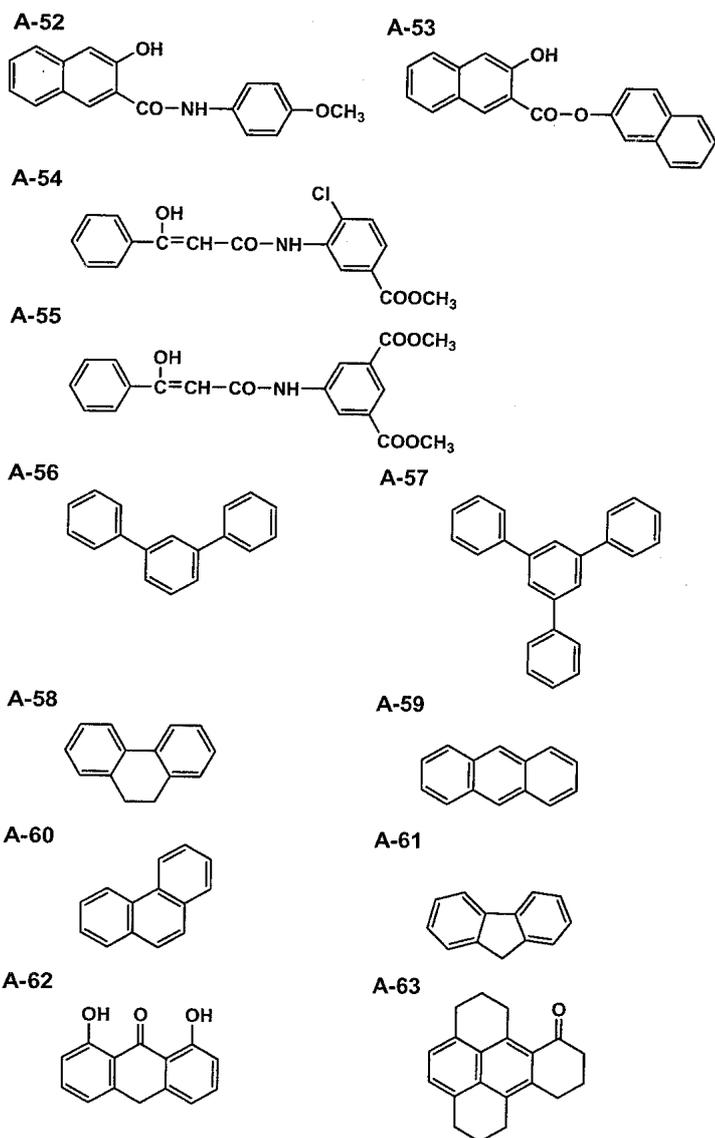
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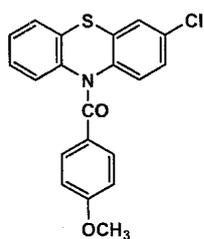
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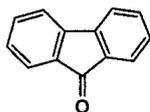




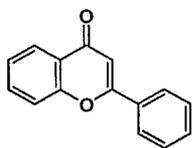
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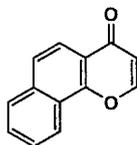
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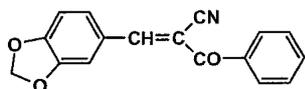
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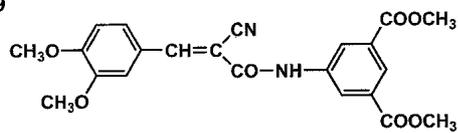
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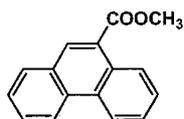
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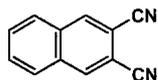
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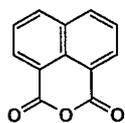
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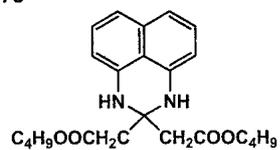
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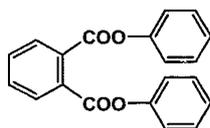
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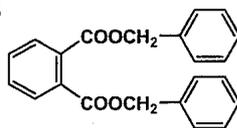
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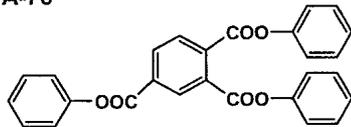
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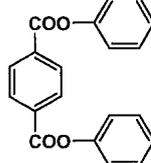
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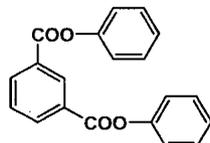
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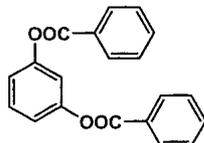
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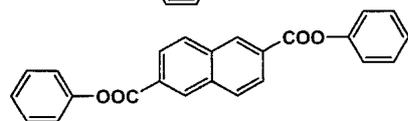
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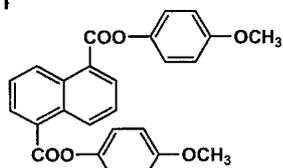
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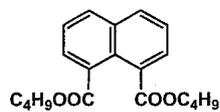
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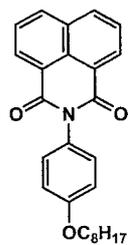
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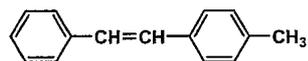
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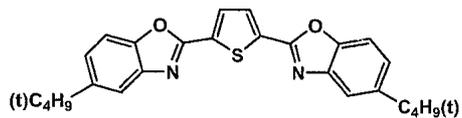
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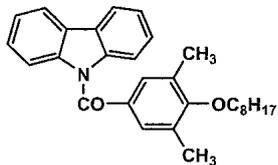
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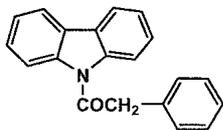
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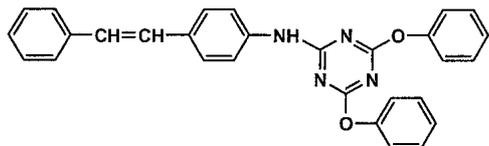
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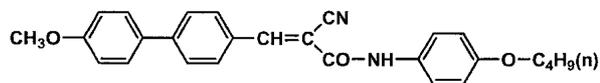
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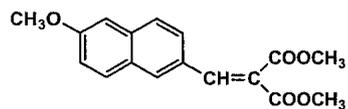
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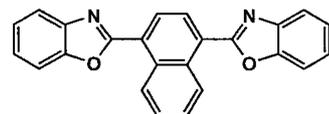
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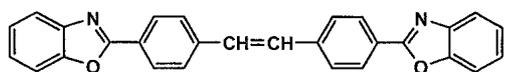
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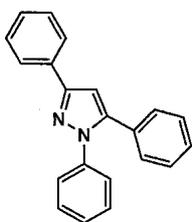
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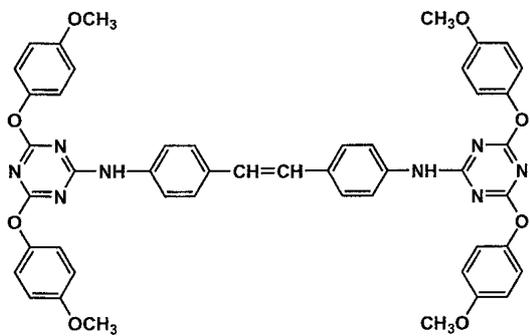
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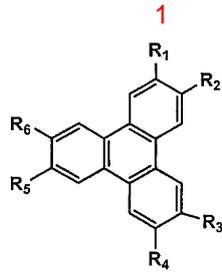
A-93



A-94



, 1 2 가 , 가 2 가 ,



, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>,  
 , -O-R<sub>11</sub>, -S-R<sub>12</sub>, -CO-R<sub>13</sub>, -O-CO-R<sub>14</sub>, -CO-O-R<sub>15</sub>, -O-CO-O-R<sub>16</sub>, -NR<sub>17</sub>,  
 R<sub>18</sub>, -CO-NR<sub>19</sub>, R<sub>20</sub>, -NR<sub>21</sub>, -CO-R<sub>22</sub>, -O-CO-NR<sub>23</sub>, R<sub>24</sub>, -SiR<sub>25</sub>, R<sub>26</sub>, R<sub>27</sub>, -O-SiR<sub>28</sub>, R<sub>29</sub>, R<sub>30</sub>,  
 , -S-CO-R<sub>31</sub>, -O-SO<sub>2</sub>-R<sub>32</sub>, -SO-R<sub>33</sub>, -NR<sub>34</sub>, -CO-O-R<sub>35</sub>, -SO<sub>2</sub>-R<sub>36</sub>, -NR<sub>37</sub>, -CO-NR<sub>38</sub>, R<sub>39</sub>,  
 , R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub>, R<sub>16</sub>, R<sub>17</sub>, R<sub>18</sub>, R<sub>19</sub>, R<sub>20</sub>, R<sub>21</sub>, R<sub>22</sub>, R<sub>23</sub>, R<sub>24</sub>, R<sub>25</sub>, R<sub>26</sub>,  
 R<sub>27</sub>, R<sub>28</sub>, R<sub>29</sub>, R<sub>30</sub>, R<sub>31</sub>, R<sub>32</sub>, R<sub>33</sub>, R<sub>34</sub>, R<sub>35</sub>, R<sub>36</sub>, R<sub>37</sub>, R<sub>38</sub>, R<sub>39</sub>,  
 ; R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>,

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, -O-R<sub>11</sub>, -S-R<sub>12</sub>, -O-CO-R<sub>14</sub>, -O-CO-O-R<sub>16</sub>, -NR<sub>17</sub>, R<sub>18</sub>, -NR<sub>21</sub>,  
 -CO-R<sub>22</sub>, -O-CO-NR<sub>23</sub>, R<sub>24</sub>, -O-R<sub>11</sub>, -S-R<sub>12</sub>, -O-CO-R<sub>14</sub>, -O-CO-O-R<sub>16</sub>,  
 -O-CO-NR<sub>23</sub>, R<sub>24</sub>, -O-R<sub>11</sub>, -O-CO-R<sub>14</sub>,  
 CO-R<sub>14</sub> 가 .

R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub>, R<sub>16</sub>, R<sub>17</sub>, R<sub>18</sub>, R<sub>19</sub>, R<sub>20</sub>, R<sub>21</sub>, R<sub>22</sub>, R<sub>23</sub>, R<sub>24</sub>, R<sub>25</sub>, R<sub>26</sub>, R<sub>27</sub>,  
 , R<sub>28</sub>, R<sub>29</sub>, R<sub>30</sub>, R<sub>31</sub>, R<sub>32</sub>, R<sub>33</sub>, R<sub>34</sub>, R<sub>35</sub>, R<sub>36</sub>, R<sub>37</sub>, R<sub>38</sub>, R<sub>39</sub>,  
 . -O-CO-R<sub>14</sub>, R<sub>14</sub> 가 . , 1 , R<sub>1</sub>,  
 R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub> .

( ) 가 . 1 3  
 0 , 1 20 , 1 10 가 . ,  
 , i- , i- , s- , t- , t- , t- , 가 , 2 2 .  
 가 ( ) 가 . 2 2  
 2 30 , 2 20 , 2 10 가 .  
 가 , 3- ( ) .  
 2 30 , 2 20 , 2 10 가 .  
 , 2- , 1- 2,4- .

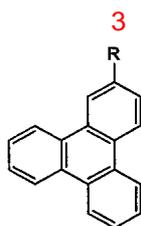
-O-R<sub>41</sub>, -S-R<sub>42</sub>, -CO-R<sub>43</sub>, -O-CO-R<sub>44</sub>, -CO-O-R<sub>45</sub>, -O-CO-O-R<sub>46</sub>, -NR<sub>47</sub>, R<sub>48</sub>, -CO-NR<sub>49</sub>, R<sub>50</sub>,  
 -NR<sub>51</sub>, -CO-R<sub>52</sub>, -O-CO-NR<sub>53</sub>, R<sub>54</sub>, -SiR<sub>55</sub>, R<sub>56</sub>, R<sub>57</sub>, R<sub>58</sub>, -O-SiR<sub>59</sub>, R<sub>60</sub>, R<sub>61</sub>, R<sub>62</sub> 가  
 . R<sub>41</sub>, R<sub>42</sub>, R<sub>43</sub>, R<sub>44</sub>, R<sub>45</sub>, R<sub>46</sub>, R<sub>47</sub>, R<sub>48</sub>, R<sub>49</sub>, R<sub>50</sub>, R<sub>51</sub>, R<sub>52</sub>, R<sub>53</sub>, R<sub>54</sub>, R<sub>55</sub>, R<sub>56</sub>, R<sub>57</sub>,  
 R<sub>58</sub>, R<sub>59</sub>, R<sub>60</sub>, R<sub>61</sub>, R<sub>62</sub> ,

2- ) , 2- , 2- , 2- ( , 4-  
 . 4- , 4-  
 , 6 20 , 6 10 가 . 6 30 , 1- 2-

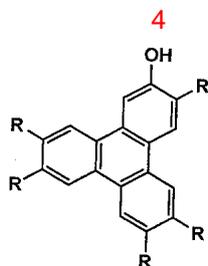
-O-R<sub>71</sub>, -S-R<sub>72</sub>, -CO-R<sub>73</sub>, -O-CO-R<sub>74</sub>, -CO-O-R<sub>75</sub>, -O-CO-O-R<sub>76</sub>, -NR<sub>77</sub>, R<sub>78</sub>, -CO-NR<sub>79</sub>



, (B-49)2- , (B-50)5- , (B-51)o- , (B-52)m- (2  
 - ) , (B-53)o- , (B-54)p- , (B-55)m-  
 , (B-56)p- , (B-57) , (B-58) , (B-59) , (B-  
 60) , (B-61) , (B-62)m- , (B-63)  
 , (B-64) , (B-65)4- , (B-66)3- , (B-67)  
 2- , (B-68) , (B-69) , (B-70)p- , (B-7)  
 1) , (B-72)m- , (B-73) , (B-74) , (B-75)4- , (B-76)  
 , (B-77)m- , (B-78)4- .  
 1 R 1 R 6 5 가 1 가 R 가  
 3 R

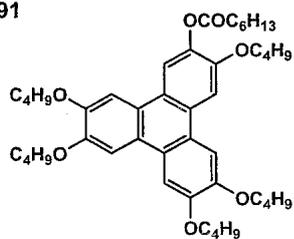


R , (B-79) , (B-80) , (B-81) , (B-82) , (B-83) , (B-84)  
 , (B-85)  
 1 R 1 R 6 5 가 R 가  
 4 R

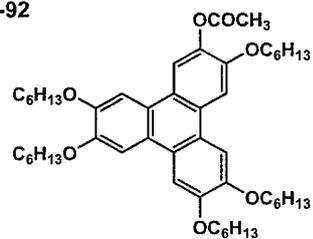


R , (B-86) , (B-87) , (B-88) , (B-89) , (B-90)  
 .  
 1 R 1 R 5 , B-91 B-100 .

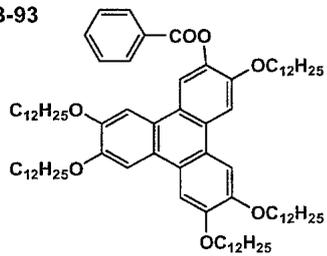
B-91



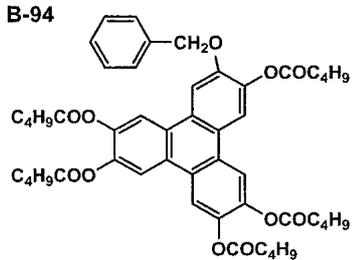
B-92



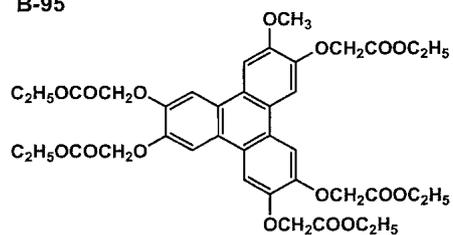
B-93



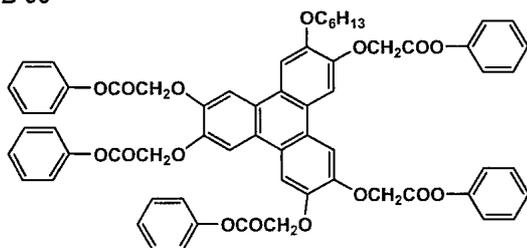
B-94



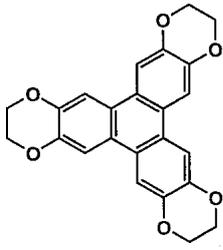
B-95



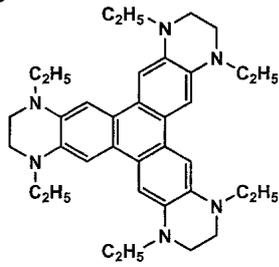
B-96



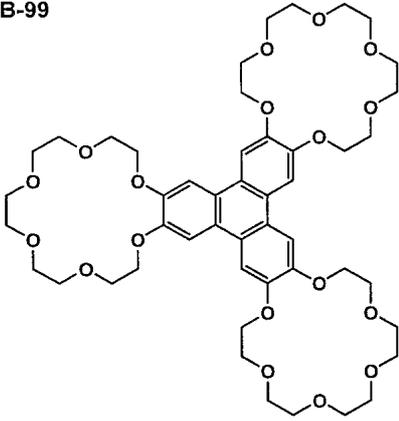
B-97



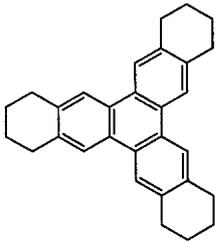
B-98



B-99



B-100



가 2 가 , 2 가 가 0.4 10 %  
 , 1.5 10 %가 0.01 20 %가 , 5 30 %가  
 , 8 30 %가 .

, 2,6- -t- -p- ,  
 - [3-(3,5- -t- -4- ) ], [3-(3-t- -5- ) ], 2,  
 -4- (n- )-6-(4- -3,5- -t- )-1,3,5- , 2,2- - [3-(3,5-  
 -t- -4- ) ], -3-(3,5- -t- -4- ) , N,N'  
 - (3,5- -t- -4- ) , 1,3,5- -2,4,6- (3,5- -t- -4-  
 - ) , -(3,5- -t- -4- )- 2,6- -t-  
 -p- [3-(3-t- -5- -4- ) ] , [3-(3,5- -t- -4- ) ] ,  
 -t- -4- ) ] , N,N'- [3-(3,5-  
 (2,4- -t- ) )  
 가 ,  
 1ppm 1.0%가 , 10 1000ppm 가 .

가 , 370nm , , 400nm  
 가 가 . , ,

109, 171, 326, 327, 328 가 가 가 가 가

0.01 5 %, 0.13 3 % 가 가

2 가 , 2 가

가 가 가 가 가

1 1.0 $\mu$ m 가 0.005 0.3 %가 2 0.0

가 ( 가

16nm 0.01 1.0 $\mu$ m 1 5 50nm 7

AEROSIL( ) 200, 200V, 300, R972, R972V, R974, R202, R812, OX50, TT600

AEROSIL 200V, R972, R972V, R974, R202, R812 2 . 2 AER

OSIL 200V R972V 0.1:99.9 99.9 0.1 가 ( )

가 가

( ) 가

2 가 가 2 가

, 1,3- , 1,4- , 2,2,2-  
 -2- , 2,2,3,3- -1- , 1,3- -2- , 1,1,1,3,3,3- -2-  
 , 1,1,1,3,3,3- -2- , 2,2,3,3,3- -1-

, 1 40 % 1 4 가

1 4 , , n- , iso- , n- , sec- , tert-

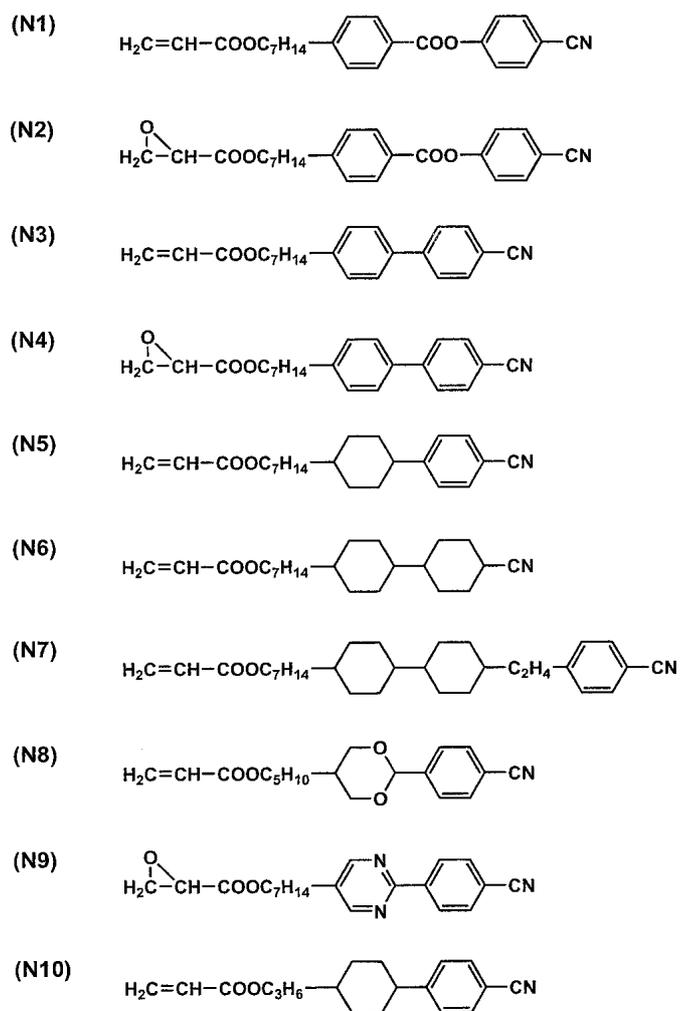
15 40 %, 100 500 (P)

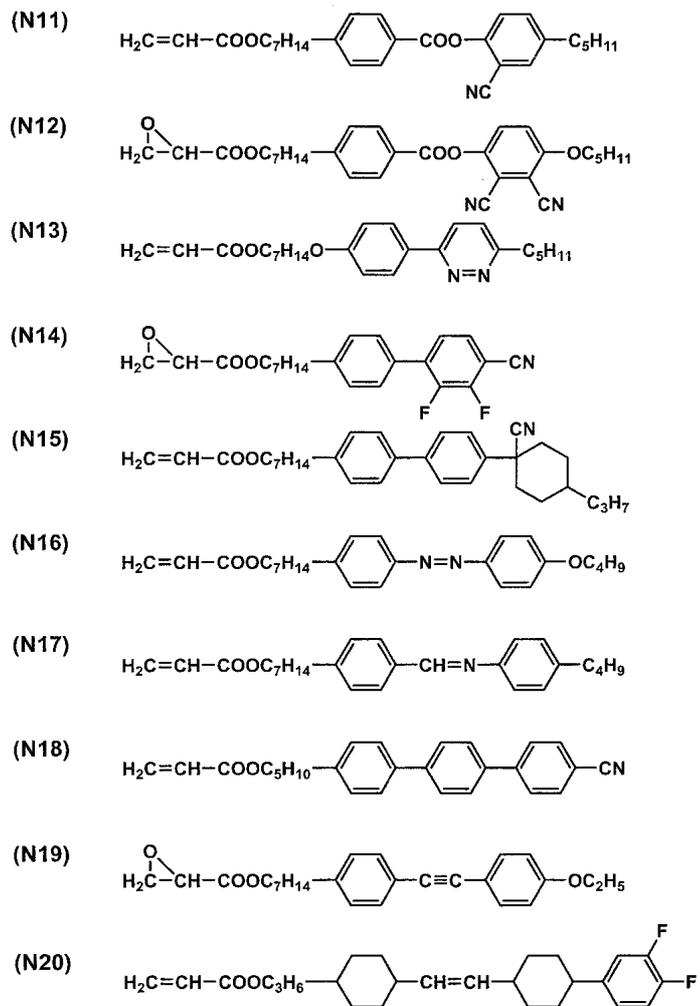
가 가 가 가 가 가

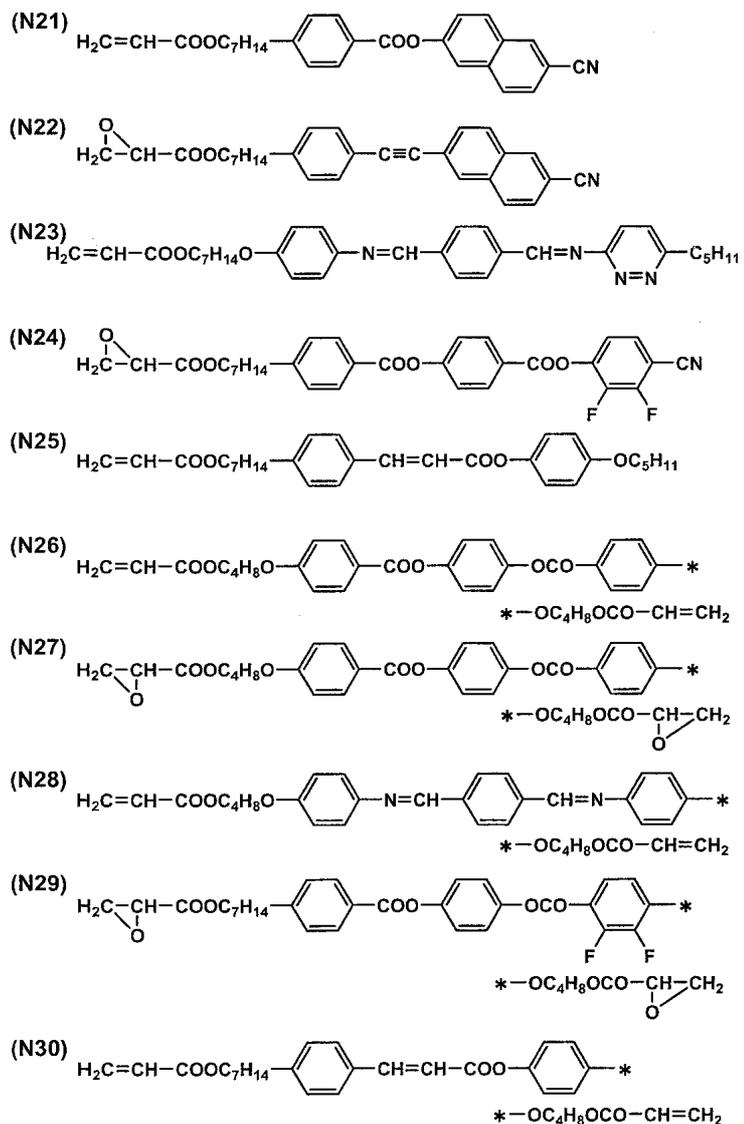
(TPP), 가 가

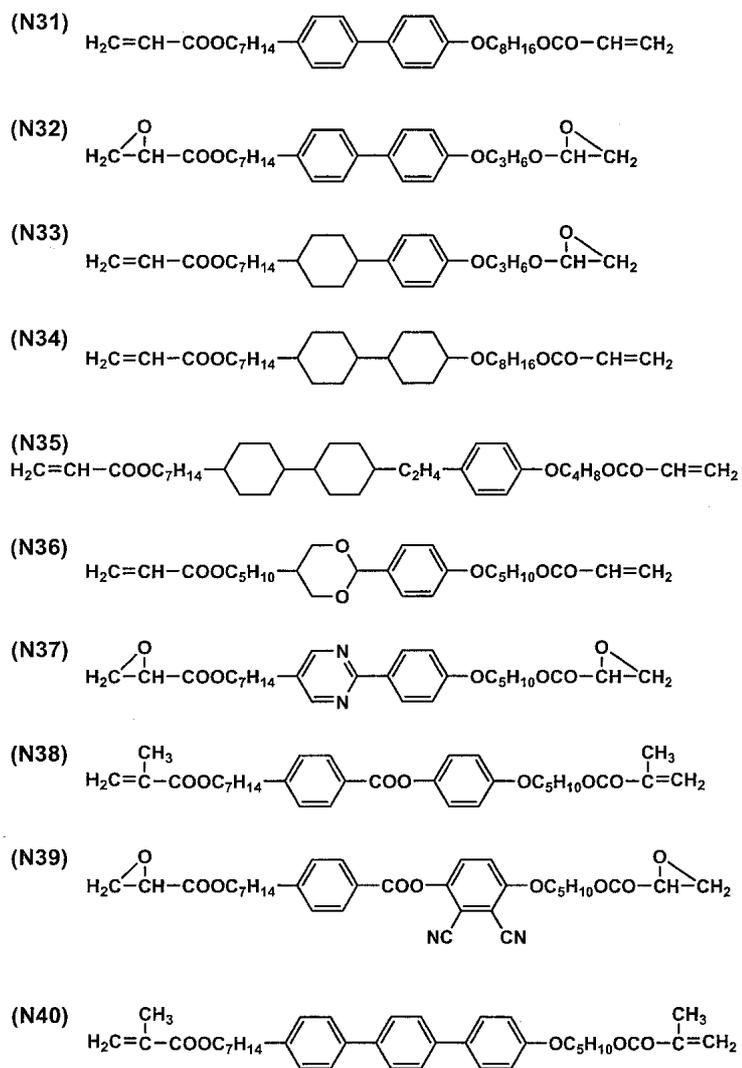
-2-

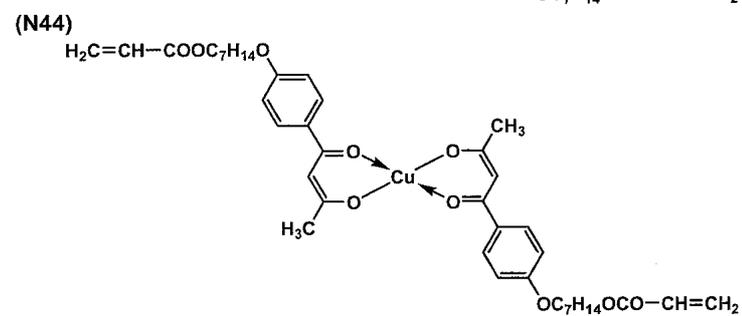
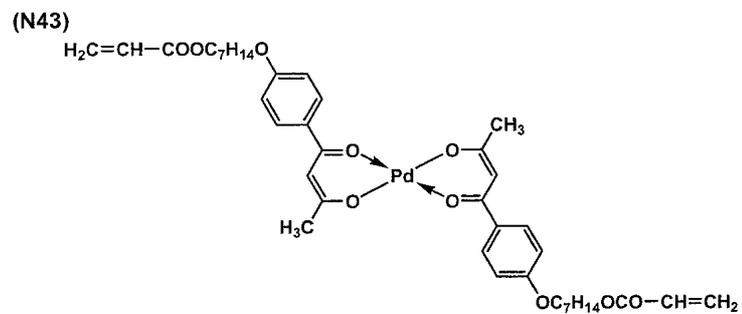
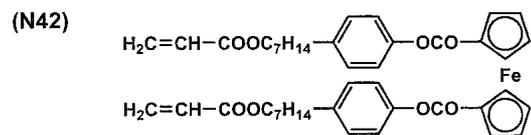
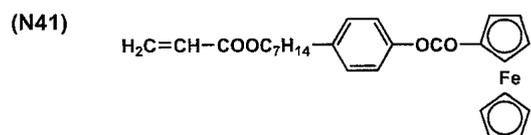




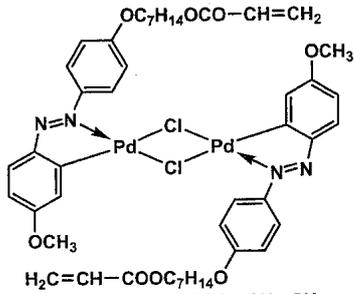




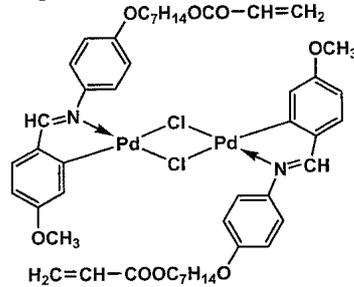




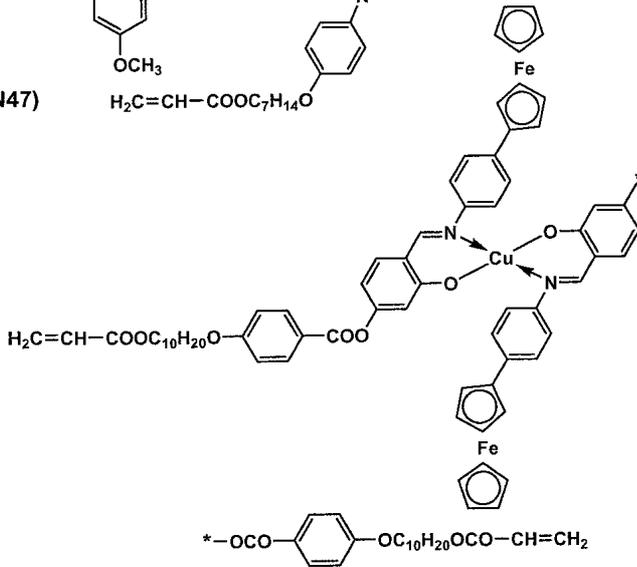
(N45)



(N46)



(N47)



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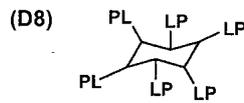
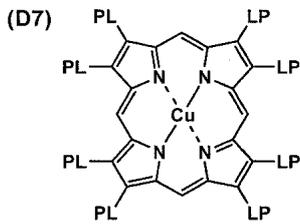
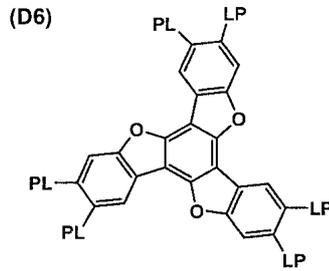
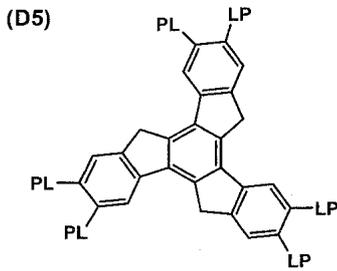
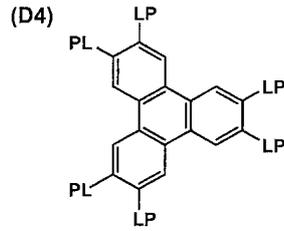
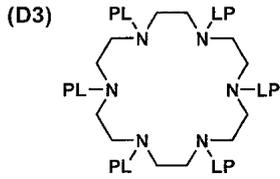
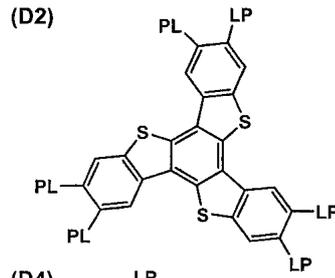
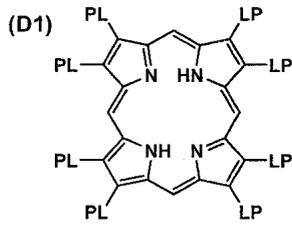
가

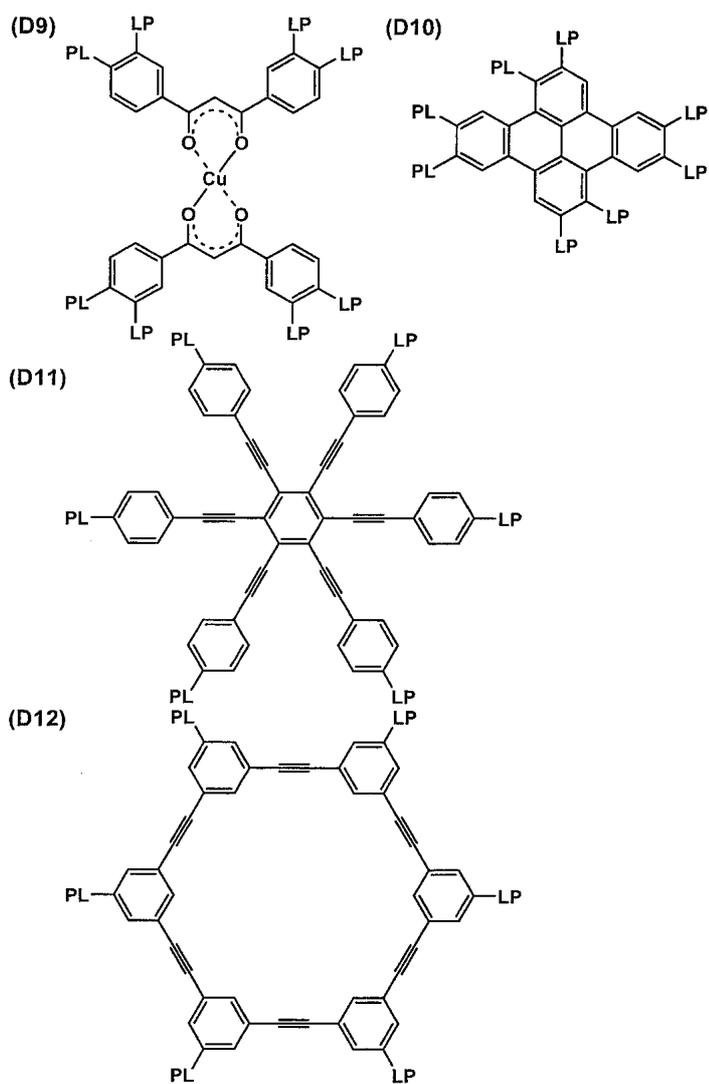
가

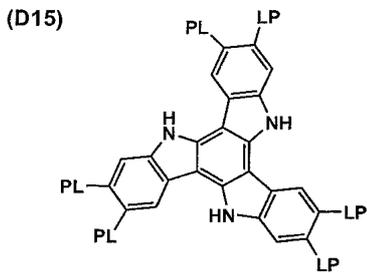
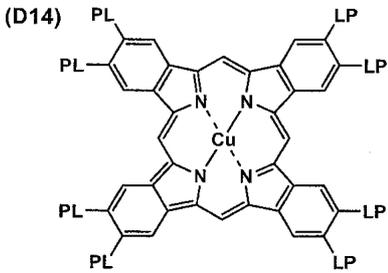
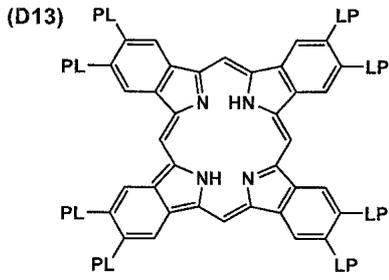
5

<sup>5</sup>  
 D(-L-P)<sub>n</sub>

(D) , D ; L 2가 , P , n 4 12 .  
 , LP( PL) , 2가 (L) (P)







, -CO-, -NH-, -O-, -S- 2가  
 . 2가 (L) , , -CO-, -NH-, -O- -S- 2가  
 -O- 2가 (L) , , -CO- 2가  
 1 12 2 12  
 6 10  
 2가 (L) (D) (P) . AL  
 , AR ( ,

L1: -AL-CO-O-AL-

L2: -AL-CO-O-AL-O-

L3: -AL-CO-O-AL-O-AL-

L4: -AL-CO-O-AL-O-CO-

L5: -CO-AR-O-AL-

L6: -CO-AR-O-AL-O-

L7: -CO-AR-O-AL-O-CO-

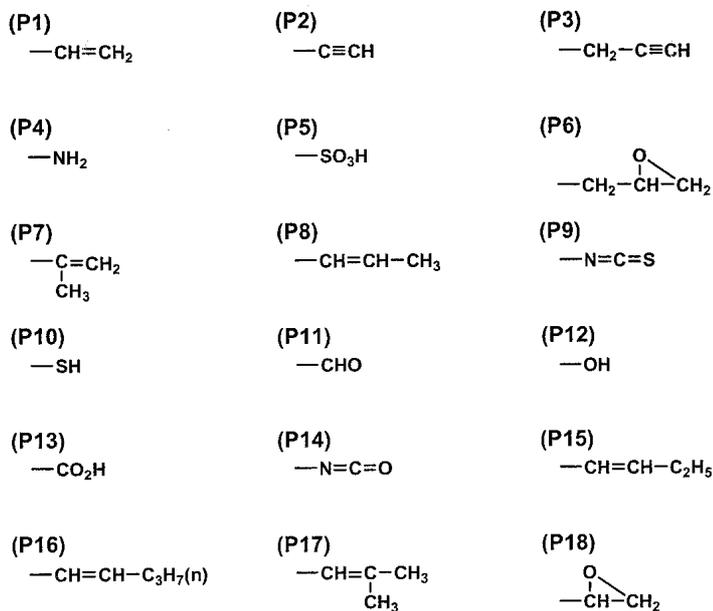
L8: -CO-NH-AL-

L9: -NH-AL-O-

L10: -NH-AL-O-CO-

- L11: -O-AL-
- L12: -O-AL-O-
- L13: -O-AL-O-CO-
- L14: -O-AL-O-CO-NH-AL-
- L15: -O-AL-S-AL-
- L16: -O-CO-AR-O-AL-CO-
- L17: -O-CO-AR-O-AL-O-CO-
- L18: -O-CO-AR-O-AL-O-AL-O-CO-
- L19: -O-CO-AR-O-AL-O-AL-O-AL-O-CO-
- L20: -S-AL-
- L21: -S-AL-O-
- L22: -S-AL-O-CO-
- L23: -S-AL-S-AL-
- L24: -S-AR-AL-

5 (P) , (P)



(P) , (P1, P2, P3, P7, P8, P15, P16, P17) (P6, P18) ,  
 , 5 , n 4 12 , (P1, P7, P8, P15, P16, P17) 가  
 , L P , (D)

가,

가



( C(md), C(td) )

n(=R/d) 가 (R) (d)  
 (KOBRA31PR, ) , 23 , 55% RH  
 589nm md, td  
 C(md)Pa<sup>-1</sup> C(td)Pa<sup>-1</sup>

( )

10cm 23 , 50% RH 24  
 , 80 , 90% RH 50 23 , 50% RH 24

md, td

S(md), S(td)

( )

가 가 ELDIM EZ-contrast  
 =( ) 가

가 60 , 90% RH 500

10

가

:

: 2° , 5°

x: 5°

, , 가

1

( A )

1 AEROSIL R972 9 , 30MPa 가

, 9

14.2 , 3.0 1.2 가, 0.7 가 ( 1 A )

0.2MPa , 가 0.04 1.0

N0.244

A

[ 1 ]

	X	Y	X+Y	
A	1.9	0.75	2.65	40%
B	2.8	0	2.8	60%

( )

( 1 A ) 100

TPP 8.5

EPEG 2

300

57

( B )

A ( 1 A ) 60% 가 B ,  
A-7 100 B

( C )

B , A-7 가 C .

( )

A , 35 , 35 , 20 , 80  
% 80 , 20% , 100N, 1.3 , 100 ,  
500 D

( ( ) )

, 100 10 D , 60 2 / 2 ,

, 50 4 120µm ( ) 1 , 4 100

, E , 5%

, D , F( ) .

, G( ) .

D H , A B 가

I( ) F , A B

H I , M( ) , N( ) 가 .

C K( ) 가 . J . J ,  
2 .

[ 2 ]

	R <sub>0</sub>	R <sub>t</sub>	C(md)	C(td)	S(md)	S(td)
E	35	135	1.26×10 <sup>-11</sup>	1.40×10 <sup>-11</sup>	0.009	0.003
G	38	138	1.26×10 <sup>-11</sup>	1.38×10 <sup>-11</sup>	0.002	0.008
M	40	130	1.26×10 <sup>-11</sup>	1.31×10 <sup>-11</sup>	0.002	0.001
N	43	140	1.27×10 <sup>-11</sup>	1.30×10 <sup>-11</sup>	0.003	0.005
K	25	85	1.26×10 <sup>-11</sup>	1.38×10 <sup>-11</sup>	0.002	0.001

	C(md)×   S(md)		C(td)×   S(td)	
E	1.1×10 <sup>-13</sup>	>	4.2×10 <sup>-14</sup>	A
G	2.5×10 <sup>-14</sup>	<	1.1×10 <sup>-13</sup>	C
M	2.5×10 <sup>-14</sup>	>	1.3×10 <sup>-14</sup>	A
N	3.8×10 <sup>-14</sup>	<	6.5×10 <sup>-14</sup>	C
K	2.5×10 <sup>-14</sup>	>	1.4×10 <sup>-14</sup>	A

(md)<C(td) , 가 E, M, K , | S(md) | > | S(td) | C  
가 가

가 , G, N , 가

K<sup>2</sup> , 가 가 .

2

1 , 65 , E G ( ) (0.1μm) ,

LC-1 . 0.1% 450mJ/cm<sup>3</sup>  
E G , L O , ,

L 가 , 1 가 . O x 가 .

(LC-1 )

MEK( ) 88

1 3

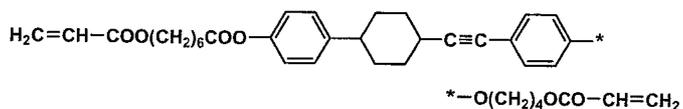
2 3

3 3

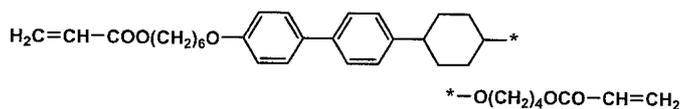
4 2

가 369( . . ) 1

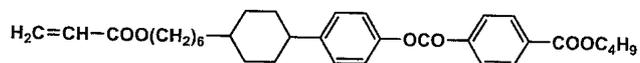
1



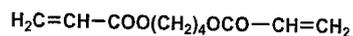
2



3



4



3

1

, 65

E, G, M, N

(

)

(0.1μm)

.

) 4.06g,

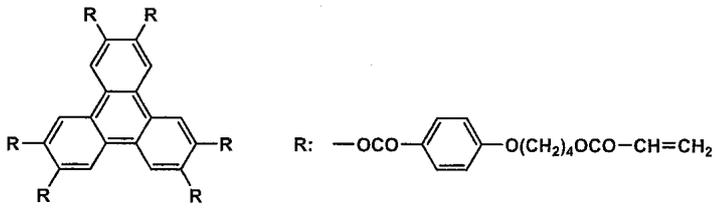
41.01g,  
(CAB531-1,  
DETX,

(CAB551-0.2,  
) 0.23g,  
) 0.45g 102g

(V#360,  
) 0.90g,  
( 가 907, 가

) 1.35g,

(



#3.6, 60, 120W/cm, 130, 2가, UV, 1, P, Q, R, S, 2가, D, F, H, I, 가, Q, S, P, R, 가 x, 가, 가

(57)

1. (a) C(md), C(td)가  $1 \times 10^{-9}$ ,  $1 \times 10^{-13} \text{ Pa}^{-1}$ , C(md) < C
- (b) 1, (R<sub>0</sub>)가 20, 70nm
- (c) 2, (R<sub>t</sub>)가 70, 400nm
- (d) 80, 90% RH, 50, S(md), S(td)가 -1, 1% | S(md) | > | S(td) |

[ 1 ]

$$R_0 = (n_x - n_y) \times d$$

[ 2 ]

$$R_t = \{ (n_x + n_y) / 2 - n_z \} \times d$$

, nx (遲相軸) ( ), ny (進相軸) ( ), nz, d

2.

1, 1

3.

1, 2, 가, 4, 5

[ 4 ]

2.  $5.5 \leq X + Y \leq 2.85$

[ 5 ]

1.  $4 \leq X \leq 2.85$

, X , Y ( ) .

4. 1 3 , 2 가 0.1 가 59.0  
 61.5% , 100

5. 1 4 ,

6. 1 5 ,

7. 2 , 1 1 6

8. 7 .

专利名称(译)	光学补偿膜，视角补偿集成偏振器和液晶显示器		
公开(公告)号	<a href="#">KR1020040074610A</a>	公开(公告)日	2004-08-25
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[标]申请(专利权)人(译)	柯尼卡株式会社		
申请(专利权)人(译)	柯尼卡美能达有限公司		
当前申请(专利权)人(译)	柯尼卡美能达有限公司		
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摘要(译)

本发明提供了一种光学补偿薄膜，光学补偿薄膜，视角补偿集成偏振器和液晶显示装置的支撑，用于增强液晶显示装置的视角补偿功能的耐久性。光学补偿薄膜的支撑体优选在纤维素薄膜的长度方向和宽度方向上具有 $1 \times 10^{-9}$ 至 $1 \times 10^{-13} \text{ Pa}^{-1}$ 的光弹性系数 $C_x(\text{md})$ ， $C_y(\text{td})$ 和 $C_z(\text{md}) < C_x(\text{td})$ ，在80°C和90%RH各处方向处理50小时前后的尺寸变化率 $S_x(\text{md})$ 和 $S_y(\text{td})$ 为-1至1%下式(1)中的 $R_0$ 为20~70nm，下述式(2)中的 $R_t$ 为70~400nm。公式1 公式2 指数方面 光学各向异性层，芳香环，液晶化合物，保护膜，偏振器和视角补偿器集成偏振片

$$R_0 = (n_x - n_y) \times d$$