

(19)
(12)

(KR)
(B1)

(21) 10 - 1996 - 0003101 (65) 1996 - 0032053
(22) 1996 02 08 (43) 1996 09 17

(30) 95 - 20583 1995 02 08 (JP)
95 - 94659 1995 04 20 (JP)
95 - 210212 1995 07 27 (JP)

(72)	가	가	가	210	가	가
	가	가	가	210	가	가
	가	가	가	210	가	가

(74)

1

(54)

가
가

1

[]

[]

1

2

3

4

*

11 : 12 :

21 : 22 :

23 : 34 :

: R :

n , n , n :

[]

가

CRT , (LCD) 가 가 가 , CRT() 가 가

가

LCD LCD 가 , (twisted nematic liquid crystal)

, (, , , , TN - ()

가 () .

가 가

EP 0576304 - A1 가

가

pe) 5(1993) - 215921 () . 가 (lod - ty)

가,

가

가

(discotic)

1)

가

2)

3)

가

가

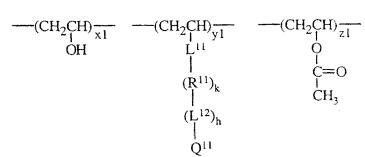
가

(

1) 5

2)

(1)



```

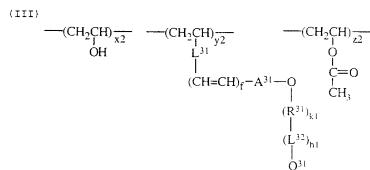
(      , L11      ,      ,      ,      ;
R11      ,      ;
L12      R11      Q11      ,      ;
Q11      ,      ;
x1    10    99.9%      , y1    0.01    80%      z1    0    70%      , , x1+y
1+z1=100      ;

```

3) 2) 1 12 ; , () , R¹¹ - R² - R³ (O - CH₂CH₂)t - , R¹¹ 1 12

L^{12} - O -, - S, - CO, - O - CO, - CO - O -, - O - CO - O -, - CO - O - CO -, - NRCO -, - NRCO -, - CONR -, NR -, - NRCONR -, - NRCO - O -, - OCONR - R ,

4) ()



$$(\quad, \mathbb{L}^{31}, \quad, \quad, \quad);$$

$$A^{31} \quad 6 \quad 24 \quad \quad \quad , \quad 1 \quad 4 \quad \quad \quad 1 \quad 4$$

$$\quad \quad \quad 6 \quad 24 \quad \quad \quad ;$$

$$R^{31} \quad R^2 \quad R^3 \text{ 가 } \quad 1 \quad 12 \quad t \geq 0 \quad 2 \quad -R^2 -$$

$-R^3 - (O - CH_2 CH_2) t - ;$

L³² - O -, - S -, - CO -, - O - CO -, - CO - O -, - O - CO - O -, - CO - O - CO -, - NRCO -, - CONR -, - NR -, - NRCONR -, - NRCO - O, - OCONR - R ;

Q^{31} ,

x2 10 99.9 % , y2 0.01 80 % z2 0 70 % , x2+y2
+z2=100 ;

k1 h1 0 1)

5) 가 ,

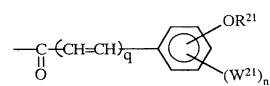
가),
가) ()

1)

2)

가)

가) ()



(, R<sup>21</sup>

W<sup>21</sup>

q 0 1 ;

n 0 4).

1) R<sup>21</sup>

W<sup>21</sup>

2) R<sup>21</sup>

W<sup>21</sup>

3) 0.1 10 %

가 가 UV
가 ,
1 . 1 (11) (12)

$$(12) \quad , \quad (\quad), (\quad), \quad (\quad) \quad . \quad \text{가} \quad \text{가}$$

(22)	가	(23)	가
.	,	가	가
,		가	

, . 80% 가
. 가, 가

Geonex(), Arton(), Fuji TAC()
, , 가

$$nz < nx = ny$$

20 {nx+ny)/2 - nz} x d 400(nm)

$$(\quad, \mathbf{nx} \quad \mathbf{ny} \qquad \qquad \qquad \mathbf{nz} \qquad \qquad \qquad \mathbf{d} \qquad \qquad (\quad, \quad) \quad),$$

30 [(nx+ny)/2 - nz] x d 150

, $nx \neq ny$ $nx \neq ny$

$$|nx - ny| / |nx - nz| \quad 0.2$$

nx my

"|nx - ny| x d" () 50 nm

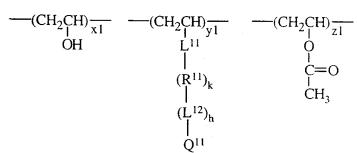
가

가

$$(-\text{OCO}-)(-\text{O}-), \quad (-\text{OCONH}-), \quad ((-\text{O}-)_2\text{CH}-)$$

가

(), () ()



(, \mathbb{L}^{11}

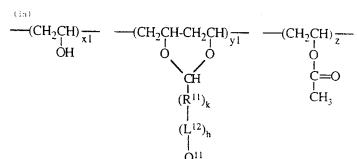
R¹¹

L^{12} R^{11} Q^{11}

Q¹¹

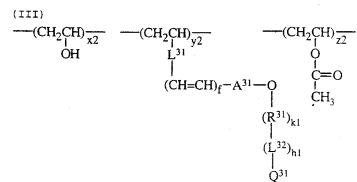
x_1, y_1	z_1	$x_1 + y_1 + z_1 = 100$				$(\%)$	$. x_1$	10	99.9	$\%$				
y_1		0.01	80	$\%$	z_1	0	70	$\%$	$. x_1$	50	99.9			
$\%$	$, y_1$	0.01	50	$\%$	$($	0.01	10	$\%$	$)$	z_1	0	50	$\%$	$.$

L^{11} , () (la) :



(la) , R¹¹, Q¹¹, x1, y1, z1, k h ()

()



$$(\quad, \mathbb{L}^{31}, \quad, \quad, \quad, \quad);$$

$$\mathbb{R}^{51} \quad \mathbb{R}^{11}$$

|³² |¹²

$$Q^{31} \quad Q^{11}$$

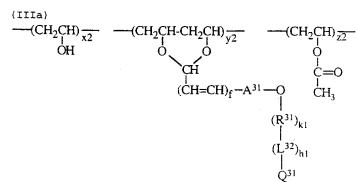
$x2 \quad 10 \quad 99.9 \quad \%$, $y2 \quad 0.01 \quad 80 \quad \%$, $z2 \quad 0 \quad 70 \quad \%$, $x2+y2$
 $+z1=100$.

k1 h1 0 1 .)

A³¹
 . , , 6 24 , 6 12
 . 1,4 - , 1,3 - , 1,2 - 1,5 - 1,4 -
 . (F, Cl, Br I), 1 4 , 1 4
 . , 1 4 , , , , , , , , , , ,
 . , 1 4 , , , , , , , , , , , ,
 4 가 , . , 1 4 , , , , , , , , , , ,
 . , F, Cl

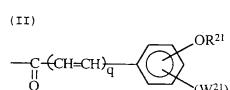
x2 50 99.9 % , y2 0.001 50 %(0.001 10 %) z2
 0 50 % .

L³¹ , () (a) :



(a) , A³¹ , R³¹ 1, Q³¹ , x2, y2, z2, k1 h1 ()

가, 가 () :



, R²¹ , , , , , , , , , , , , ;

W²¹ , , , , , , , , , , , , ;

q 0 1 ;

n 0 4(0 1, 0) 가 .

R²¹ , , ;

W²¹ , , , , , , , , , , , , ;

, R²¹ , , , , , , ;

$$1 \quad 24 \quad , \quad 1 \quad 12$$

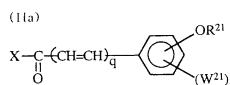
, N - , , , , n - , n - , n - , n - , n - , n - , n - , n - , n -
 2 -) , 2 - [2 - (2 -)] , 2 - n - , 2 - , 2 - (2 - ;
) , 3 - , 3 - , 3 - n - , 3 - , 3 - 2 -
 , , 2 - 2 - (4 - n -) : , , 2 - , 2 - , 5 -
 , 6 - , 7 - 8 - ; , , 2 - , 5 - , 6 -
 , 7 - 8 - ; . 3,4 - , 4,5 - , 5,6 -
 , 6,7 - , 7,8 - 6,7 - : , 2 -
 , 3 - , 7 - 8 - ; , , 2 -
 , 3 - , 3 - , 4 - , 5 - , 6 - , 6 -
 , 7 - 8 - : , , 2 -
 , 3 - , 4 - , 5 - , 6 - , ,
 7 - 8 - .

OR²¹ 3 - 4 -

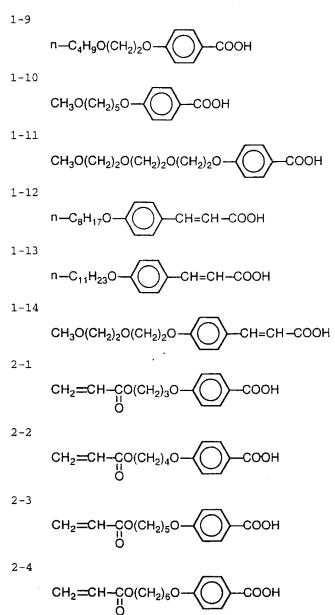
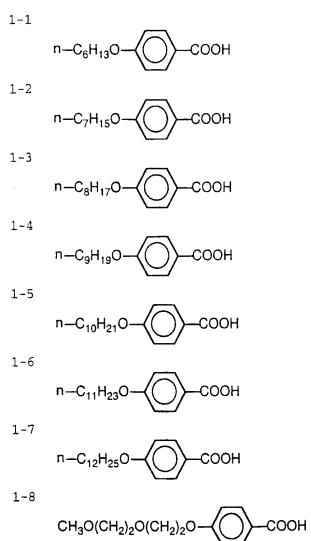
0.1 10 % (0.1 5

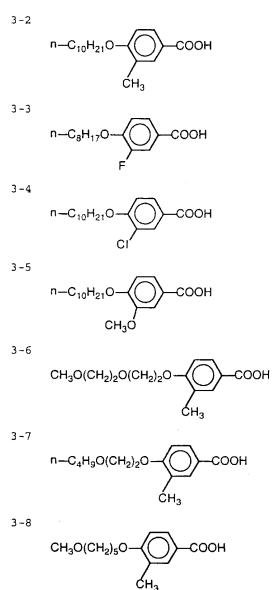
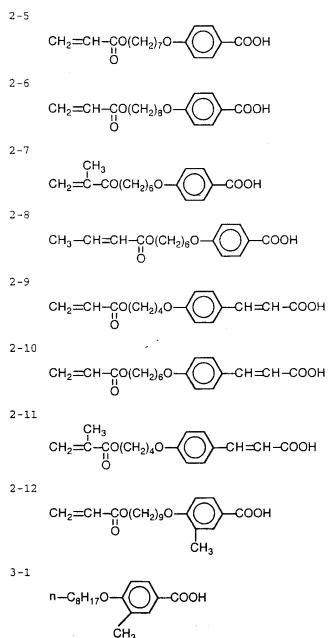
%)

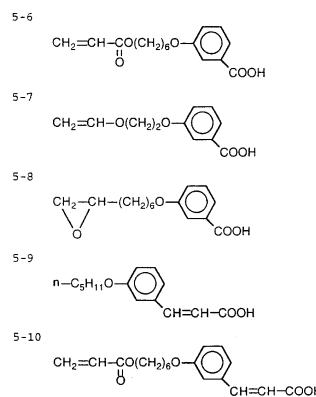
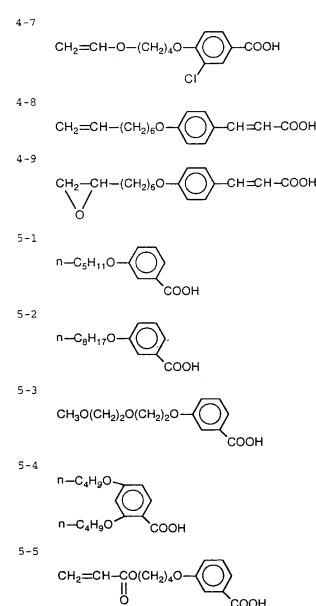
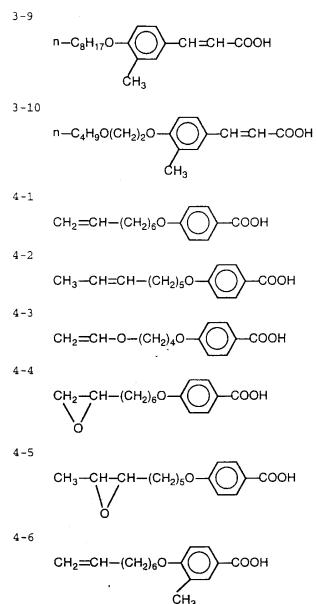
() (a)



(a) , R²¹, W²¹, n q () . X X - CO -
. X 4 - N - ; - (,), - (, Cl Br
, 가 . (a) 가 ,
, 가 Cl . X ["Synthesis of Peptide", N Izumiya, C
hapter 5, Maruzen, 1975]

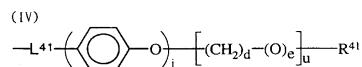






()

()

(), L⁴¹, R⁴¹

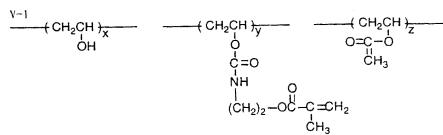
, j e 0 1 , d 2 24 (2 10) u 0 4 .

(a)

70 100%
COONa, - Si(OH)₃, ;

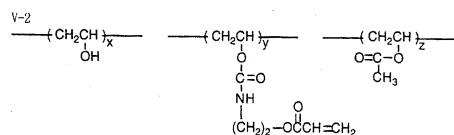
- N(CH₃)₃ · Cl, C₉H₁₉ COO -, - SO₃ Na - C₁₂H₂₅ ,
- COONa, - SH - C₁₂H₂₅ S -
; - COOH, - CONH₂, - COOR(R:), C₆H₅ - (C₁₂H₂₅S -)

100 3000 가 . 80 100%, 85
95%



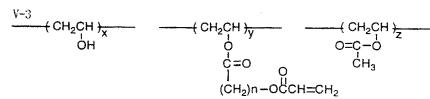
V-1 , x, y z :

	x (물%)	y (물%)	z (물%)
종합체 1 번	86.3	1.7	12
종합체 2 번	85.0	3.0	12
종합체 3 번	87.7	0.3	12
종합체 4 번	70.0	18.0	12
종합체 5 번	86.9	1.1	12
종합체 6 번	98.5	0.5	1
종합체 7 번	97.8	0.2	2
종합체 8 번	96.5	2.5	1
종합체 9 번	94.9	4.1	1



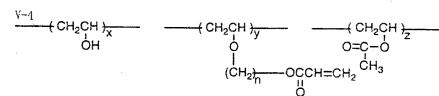
V-2 , x, y z :

	x (%)	y (%)	z (%)
종합체 10 번	86.3	1.7	12
종합체 11 번	81.7	0.3	18
종합체 11a 번	87.7	0.3	12
종합체 12 번	83.0	5.0	12
종합체 13 번	89.0	10.0	1
종합체 13a 번	78.0	10.0	12



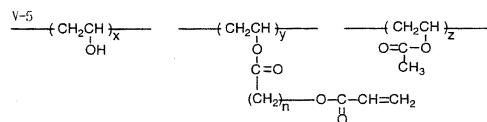
V - 3 , n, x, y z

	n (수)	x (률%)	y (률%)	z (률%)
중합체 14 번	2	80.3	1.7	18
중합체 15 번	3	87.5	0.5	12
중합체 16 번	4	94.0	5.0	1
중합체 16a 번	4	83.0	5.0	12
중합체 17 번	5	86.9	1.1	12
중합체 18 번	6	87.7	0.3	12



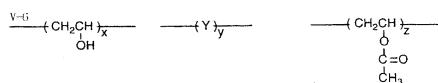
V - 4 , n, x, y z

	n (수)	x (물%)	y (물%)	z (물%)
중합체 19 번	2	87.8	0.2	12
중합체 20 번	2	87.5	0.5	12
중합체 21 번	3	94.4	0.6	5
중합체 21a 번	3	87.4	0.6	12
중합체 22 번	4	86.4	1.6	12
중합체 23 번	5	96.0	2.0	2
중합체 23a 번	5	86.0	2.0	12
중합체 24 번	6	84.8	3.2	12



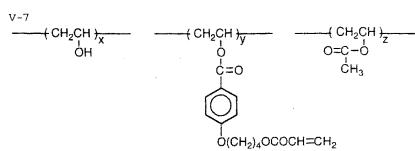
V - 5 , n, x, y z

	n (수)	x (률%)	y (률%)	z (률%)
중합체 25 번	2	87.5	0.5	12
중합체 26 번	3	97.4	0.6	2
중합체 26a 번	3	87.4	0.6	12
중합체 27 번	4	86.4	1.6	12
중합체 28 번	5	80.0	2.0	18
중합체 29 번	6	84.8	3.2	12



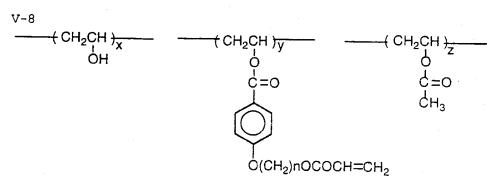
V - 6 , Y, x, y z

	Y	X	Y	Z
		(물%)		
중합체 30 번		86.3	1.7	12
중합체 31 번		97.3	1.7	1
중합체 32 번		87.4	0.6	12
중합체 33 번		80.5	1.2	18
중합체 34 번		86.3	1.7	12



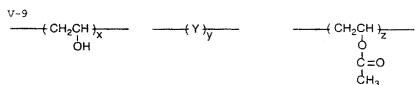
V - 7 , x, y z

	x (몰%)	y (몰%)	z (몰%)
종합체 35 번	87.8	0.2	12
종합체 36 번	88.0	0.003	12
종합체 37 번	87.86	0.14	12
종합체 38 번	87.94	0.06	12
종합체 39 번	87.2	0.8	12
종합체 40 번	98.5	0.5	1
종합체 41 번	97.8	0.2	2
종합체 42 번	96.5	2.5	1
종합체 43 번	94.9	4.1	1
종합체 E 번	86.9	1.1	12
종합체 F 번	98.5	0.5	1



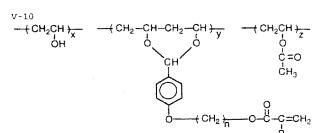
V - 8 , n, x, y z :

	n (수)	x (몰%)	y (몰%)	z (몰%)
종합체 44 번	3	87.8	0.2	12
종합체 45 번	5	87.85	0.15	12
종합체 46 번	6	87.7	0.3	12
종합체 47 번	8	87.7	0.3	12



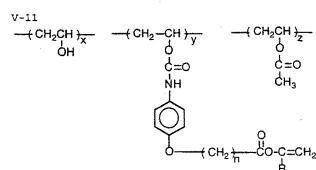
V - 9 , Y, x, y z :

	<i>Y</i>	<i>x</i>	<i>y</i>	<i>z</i>
		(몰 %)		
중합체 48번		96.2	1.8	2
중합체 49번		84.2	0.8	15
중합체 50번		84.9	3.1	12
중합체 51번		87.5	2.5	10



V - 10 , n, R, x, y z :

	<i>n</i> (수)	<i>R</i>	<i>x</i> (몰%)	<i>y</i> (몰%)	<i>z</i> (몰%)
중합체 52 번	6	H	86.4	1.6	12
중합체 53 번	4	H	87.2	0.8	12
중합체 54 번	4	H	84.7	3.3	12
중합체 55 번	5	CH ₃	78.8	6.2	15
중합체 56 번	9	CH ₃	94.2	3.8	2
중합체 57 번	3	H	85.0	5.0	10



V - 11 , n, R, x, y z :

	n (수)	R	x (률%)	y (률%)	z (률%)
종합체 58 번	2	H	87.5	2.5	10
종합체 59 번	4	H	84.5	0.5	15
종합체 60 번	5	CH ₃	97.8	0.2	2
종합체 61 번	6	CH ₃	94.5	4.1	1
종합체 62 번	9	H	97.3	1.7	1

$$(\quad , \quad (\text{ a}) \quad) \quad (\quad) \quad (y \quad y_1 \quad) \quad (\quad)$$

[5,4,0] - 7 - (DBU); ()

, , ; t - ; , , - n -
 , , ; , , , , 1,8 -
 [5,4,0] - 7 - (DBU), (TMBDA) 1,4 - [2,2,2]

)가 .

0 , - 20 120 , - 5 90 .
, 1/100 1/1 (/PVA),
1/50 1/5 .

() , ,

[]

1 ()

300ml - , (: 88 % ; Kuraray Co., Ltd.) 가
 MP - 203) 14.7g 100Mℓ(DMSO; 4A PVA PVA 70 가 .2
 , , ,
 (0.776g) 15Mℓ PVA 가 .2
 , 1.25 가
 600Mℓ 가
 14.0g(1 : 91%)

[1]

NMR (: DMSO - d₆)

, , 가
 , MP - 203

= 5.7 ppm, 6.1 ppm()

[가]

50Mℓ , 0.015g 가 0.03%
 가 - 가 (UV - 2200, Shimadzu Seisakusyo. Ltd) 가

: 202 nm

(220nm) : 0.839

MP - 203 () 가

(202nm) : 0.504

(y)

 $1 \times 10^{-4} M$

가

: 202 nm

(202nm) : 0.903

: 8.42×10^{-4} M · cm

1 (202nm) 가가

$y (=1.7)$

(y)

(202nm)

[2, 3 4]

2, 3 4 ()

2, 3 4 1 . 가

2

: 202 nm

(202nm) : 1423

$y=3.0$

3

: 202 nm

(202nm) : 0.653

$y=0.3$

4 (0.001%)

: 202 nm

(202nm) : 1.532(0.001%)

$y=18.0$

[5]

5 ()

70

1

5

[6 34]

6 34()

6 34

1

[35]

35 ()

가 500ml - , (: 88 %; Kuraray Co., Ltd. 가
 MP - 203) 26.4 g 225Mℓ(DMSO; 4A)
 , PVA

, 가 50 - Mℓ (T
 HF) 20Mℓ 4 - (4 - 3.4
 2Mℓ(20) (0) (2 - 2 ; 20) 1.55Mℓ(20)
 , 30 (0) 5.28g
 , 2 - 2

PVA , 3.42 Mℓ(20) 0.24 g(2) 가
 , 6 2.25

가

(35 ; ; 84%) 22.1g

[35]

NMR (: DMSO - d6)

, , 가
 , MP - 203

= 7.9 ppm, 7.0 ppm()

= 6.3 ppm, 6.2 ppm, 5.9 ppm()

가

100Mℓ , 0.1g 가 0.1% 가
 - 가 (UV - 2200, Shimadzu Seisakusyo. Ltd)

: 260 nm

(260nm) : 0.788

MP - 203() 가 . 220 400nm
 가
 . 가

(260nm) : 0.011

(y)

2 - 2

 $(1 \times 10^{-4} M)$

가

() : 260

(260) : 1.84

() : $1.84 \times 10^{-4} M^{-1} \text{ cm}$

35

(260m) 가가

2 - 2

(y)

(260nm)

 $y = (=0.21)$

[36, 37 38]

36, 37, 38 ()

37, 38

35

36,

[]

종합체	36번	37번	38번
[PVA 의 에스테르화]			
폴리비닐 알콜 MP-203 (g)	26.4	26.4	26.4
디메틸설포사이드 (DMSO;mℓ)	225	225	225
디이소프로필에틸아민 (mℓ)	0.34	1.71	10.3
디메틸아미노피리딘 (g)	0.024	0.12	0.72
[총합산 무수물의 제조]			
메탄설포닐클로라이드 (g)	0.16	0.78	4.65
테트라하이드로푸란 (THF;mℓ)	2	10	60
화합물 2-2 번 (g)	0.53	2.64	15.84
디이소프로필에틸아민 (mℓ)	0.34	1.71	10.3
THF (mℓ)	2	10	60
수율 (g/%)	21.1/80	23.5/89	22.3/84

36 38 가

36

: 260nm

(260nm) : 0.023

$$y = 0.003$$

37

: 260nm

(260nm) : 0.553

$$y = 0.14$$

38 (0.001 %)

: 260nm

(260nm) : 0.132

$$y = 0.06$$

[E]

E ()

6 45 8

38

[39]

39 ()

가 500ml - , (: 88 % : Kuraray Co., Ltd. 가
 MP - 203) 26.4g 168Mℓ(DMSO) : 4A)
 PVA

가 200 - Mℓ 3.24 Mℓ(42) (THF) 21Mℓ 4 - (4 -) (THF 42Mℓ 7.32 Mℓ(42) (0) (2 - 2) 11.1g(42) (0) 가 가 , 30 (0) 2 - 2 .

PVA	,	7.32 Mℓ(42))	4 - N, N -	0.51g(4.2	
)	가	.		45	가	45
3	.	,	,			.
	2 -	134Mℓ	가			1.68
가	.	.			700Mℓ	.
			(38 ; ; 91%)	24.0g	

(y) 35 (260nm) y(= 0.08)

[40, 41, 42 43]

44, 45, 46 47 ()

2 - 2 2 - 1, 2 - 3, 2 - 4 2 - 6
44, 45, 46 47 .

35

[44 45]

53 54 ()

가 500Mℓ - , (Kuraray Co., Ltd. 가 MP - 203) 44g, p -
4.4g(23) (DMSO : 4A)200Mℓ
PVA) 2.0g(53) 8.0g(54) PVA . 4 - (4 -
PVA 가 5 . DMSO DMSO 80Mℓ

가 3 . 1
가 .(53 , : 41g, 89% ; 54 , : 43g 83%)

[53 54]

NMR (: DMSO - d₆)

, 가
, MP - 203

= 7.3 ppm, 6.9 ppm ()

= 6.3 ppm, 6.2, 5.9 ppm ()

= 5.5 ppm ()

가 가 가 (, = 10ppm)

가

4 - (4 -)

1×10^{-4} M

- 가 (UV - 2200, Shimadzu Seisakusyo, Ltd,

가)

() : 272 nm

(272 nm) : 1.66

() : $1.66 \times 10^{-4} \text{ M}^{-1} \cdot \text{cm}$

(y)

$$\cdot (= 0.8, \quad \quad \quad 53 \quad \quad 3.3, \quad \quad \quad 54 \quad) \quad \quad \quad (272\text{nm}) \quad \quad \quad y$$

가

90 %

(272nm)

y

70 70%

기

가

가

가

가
(a)

(

가

20 110 , , 60 100
1 36 , 5 30 가 .
10 μ m . 0.1

LCD()

()
가

, ["Chemistry of Liquid Crystal, Elements of Chemistry, vol. 22, edited by The Chemical Society of Japan, 1994"], , ,

가 (, , , , ,
) $\text{CaH}_{2a+1} - \text{Ph} - \text{Ph} - \text{CN}$, $\text{CaH}_{2a+1} - \text{Cy} - \text{Ph} - \text{CN}$, $\text{CaH}_{2a+1} - \text{Ph} - \text{COO} - \text{Ph} - \text{CN}$, $\text{CaH}_{2a+1} - \text{Ph} - \text{COO}$
- $\text{Ph(F)} - \text{CN}$, $\text{CaH}_{2a+1} - \text{Cy} - \text{COO} - \text{Ph} - \text{CN}$, $\text{CaH}_{2a+1} - \text{Cy} - \text{Ph} - \text{O}(\text{CbH}_{2b+1})$, $\text{CaH}_{2a+1} - \text{Cy} - \text{Ph} - \text{Ph} - \text{O}(\text{CbH}_{2b+1})$,
 $\text{CaH}_{2a+1} - \text{Cy} - \text{C}_2\text{H}_4 - \text{Ph} - \text{Ph(F)} - \text{DbH}_{2b+1}$ (, Ph , Cy , Ph(F)
F a b 1 24): ["Makromol, Chem., D.J. Broer et al.,
vol. 189, pp. 185, 1989" Makromol Chem., D.J. Broer et al., vol. 189, pp. 185, 1989"]

)

- 1) () ()
. "A Handbook of Chemistry, fourth edition, basic series, volume, 15 chapter, edited by
The Chemical Society of Japan, 1993"

- 2) Gaussian 92, MOPAC 93, CHZRAM/AUANTA N
M3. Gaussian 92) .

3)

가 3) 4)

3') ()

4')

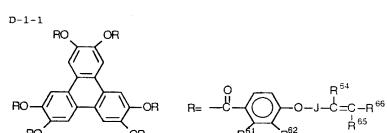
- 5)
a, b c

$$a, b \quad c \quad a \quad b \quad a/2 \quad , \quad b/2 > c$$

가, ["New Aromatic Chemistry, Elements of Chemistry, vol. 15. edited by The Chemical Society of Japan, 1977"]
가

가
가
가
(가)
(N_D)
["Chemical Review, C. Hansch, A. Leo, R.W. Taft vol. 91. pp. 161 - 185, 1991. American Chemical Society"]
가,
가

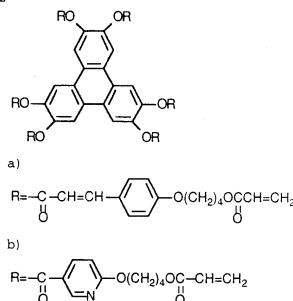
가
(
)
가
["Organic Function Group Preparations. S. R. Sandler, W. Karo, Vol. 1 Vol. 2. Academic Press, New York. London. 1968"]
(
)
가
["Macromolecules, R. A. M/Hikmet, vol. 25, pp 4194, 1992", "Polymer, R. A. M. Hikmet vol. 34, 8, pp, 1763, 1993" "Macromolecules, D, J Broer, Vol. 26. pp, 1244, 1993"]
["Or



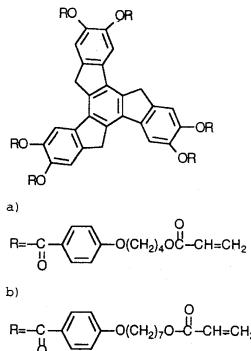
, R⁶¹, R⁶², R⁶⁴, R⁶⁵, R⁶⁶ J

St-N ₃	R ⁶¹	R ⁶²	R ⁶⁴	R ⁶⁵	R ⁶⁶	J
TP-1	H	H	H	H	H	- (CH ₂) ₂ OOC-
TP-2	H	H	H	H	H	- (CH ₂) ₃ OOC-
TP-3	H	H	H	H	H	- (CH ₂) ₄ OOC-
TP-4	H	H	H	H	H	- (CH ₂) ₅ OOC-
TP-5	H	H	H	H	H	- (CH ₂) ₆ OOC-
TP-6	H	H	H	H	H	- (CH ₂) ₇ OOC-
TP-7	H	H	H	H	H	- (CH ₂) ₈ OOC-
TP-8	H	H	H	H	CH ₃	- (CH ₂) ₉ OOC-
TP-9	H	H	H	H	C ₂ H ₅	- (CH ₂) ₆ OOC-
TP-10	CH ₃	H	H	H	C ₂ H ₅	- (CH ₂) ₅ OOC-
TP-11	CH ₃	CH ₃	H	H	H	- (CH ₂) ₂ OOC-
TP-12	H	CH ₃	H	H	H	- (CH ₂) ₈ OOC-
TP-13	CH ₃	H	H	H	H	- (CH ₂) ₄ OOC-
TP-14	CH ₃	H	H	H	H	- (CH ₂) ₅ OOC-
TP-15	CH ₃	H	H	H	H	- (CH ₂) ₆ OOC-
TP-16	CH ₃	CH ₃	H	H	H	- (CH ₂) ₇ OOC-
TP-17	H	CH ₃	H	H	H	- (CH ₂) ₈ OOC-
TP-18	CH ₃	H	H	H	CH ₃	- (CH ₂) ₉ OOC-
TP-19	CH ₃	H	H	H	C ₂ H ₅	- (CH ₂) ₆ OOC-
TP-20	H	CH ₃	H	H	CH ₃	- (CH ₂) ₅ OOC-
TP-21	H	H	H	H	n-C ₃ H ₇	- (CH ₂) ₂ OOC-
TP-22	H	H	H	H	H	- (CH ₂) ₃ OOC ₂ H ₄ OOC-
TP-23	H	H	H	H	H	- (C ₂ H ₄ O) ₂ C ₃ H ₆ OOC-
TP-24	CH ₃	H	H	H	H	- (C ₂ H ₄ O) ₂ OOC-
TP-25	H	H	H	H	H	- (C ₂ H ₄ O) ₃ OOC-
TP-26	H	H	H	CH ₃	CH ₃	- (CH ₂) ₄ OOC-
TP-27	H	H	CH ₃	H	H	- (CH ₂) ₅ OOC-
TP-28	H	H	CH ₃	H	H	- (CH ₂) ₆ OOC-
TP-29	H	H	CH ₃	H	H	- (CH ₂) ₇ OOC-
TP-30	H	H	CH ₃	H	H	- (CH ₂) ₈ OOC-

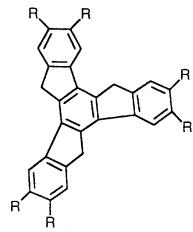
D-1-2



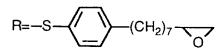
D-2



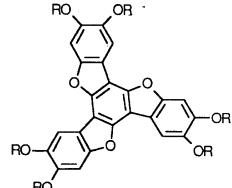
D-3



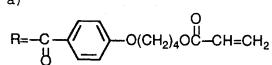
a)



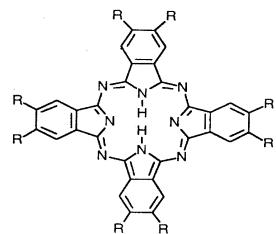
D-4



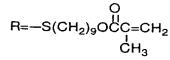
a)



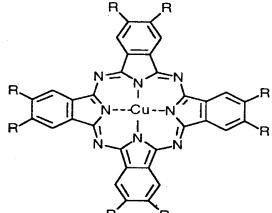
D-5



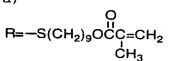
a)



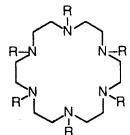
D-6



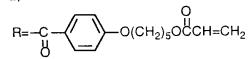
a)



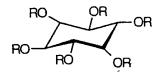
D-7



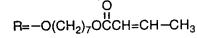
a)



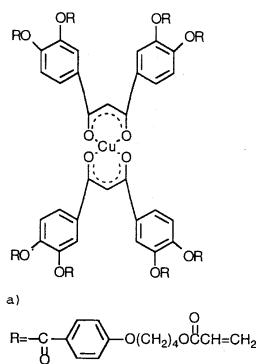
D-8



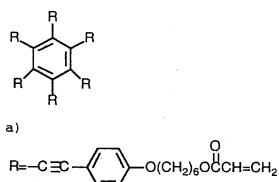
a)



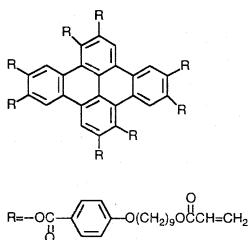
D-9



D-10



D-11



, 가 (, 가 ,)

(,)

, 가 ,
0.1 20 μm

, (,) (,)
(,) (, UV ,) 가 , , , ,

, , UV , , (

,)

, ,

, 가 ,)

가

(31), (32)

(33)

3

3

R
n , n n
(34) Re

n , n , n
n n n

가

n < n = n

n , n n
n n

n , n n n n n n
, 가

가

| n - n | / | n - n | 0.2

, n . n n

TN - LCD TFT - LCD
(2) 5 50

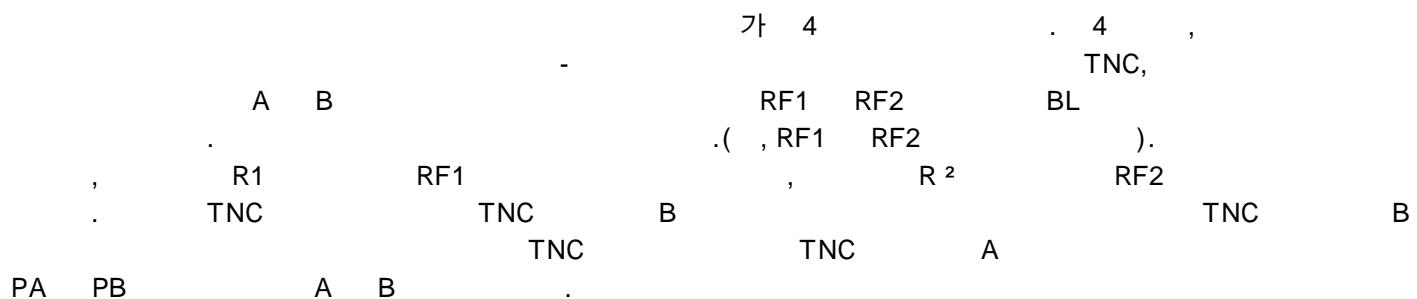
10 40

가,

50 [(n + n /2 - n] × D 400(nm)

, D ;

100 [(n + n /w - n] × D 400(nm)



가 가

$$[\quad \quad \quad 1 \quad \quad \quad 4 \quad \quad \quad 1]$$

, 80 10 0.8 μ m (bar coater).

[REDACTED]

1 1.0

18.0

6.0
1kgf/cm²() (80mm) 100m/ 1,000 rpm

(TP - 3) (10 %) (3,000rpm) ()

가

(PS82 - , Melter Co., Ltd 가)
(OPTIPHOT - POL, Nippon Kogaku K.K 가) 가

가, 1 4

가

1

[1]

실시예 1	1 번	균일한 배향
실시예 2	35 번	균일한 배향
실시예 3	39 번	균일한 배향
실시예 4	53 번	균일한 배향

비교예 1 *MP-203 망상·조직이

* : Kuraray Co., Ltd.

$$[\quad \quad \quad 5 \quad \quad \quad 34 \quad \quad \quad 2 \quad \quad \quad 3]$$

100 μ m (Fuji Photo Film Co., Ltd. 가), 2()
0.8 μ m . , 80 10

[풀리비글 알뜰이 표준 용액]

표 2에 표시된 폴리비닐 알콜

1.0 중량부

메탄	6.0	중량부
액화	18.0	중량부

, 100m/
(80mm) , 1000rpm
1kgf/cm(,

, TAC

실시예	종합재총	배향 특성	습기-열에 대한 저항성
	종합재번호(상술함)		
실시예 5	1번	AA	AA
실시예 6	2번	AA	AA
실시예 7	3번	AA	AA
실시예 8	4번	AA	AA
실시예 9	5번	AA	AA
실시예 10	5번/*MP-203=3/1	AA	AA
실시예 11	5번/**PVA-117=4/1	AA	AA
실시예 12	10번	AA	AA
실시예 13	14번	AA	AA
실시예 14	20번	AA	AA
실시예 15	25번	AA	AA
실시예 16	26번	AA	AA
실시예 17	29번	AA	AA
실시예 18	35번	AA	AA
실시예 19	36번	AA	AA
실시예 20	37번	AA	AA
실시예 21	38번	AA	AA
실시예 22	39번	AA	AA
실시예 23	39번/*MP-203=3/1	AA	AA
실시예 24	39번/**PVA-117=4/1	AA	AA
실시예 25	1	AA	AA
실시예 26	44번	AA	AA
실시예 27	45번	AA	BB
실시예 28	48번	AA	AA
실시예 29	49번	AA	AA
실시예 30	51번	AA	AA
실시예 31	53번	AA	--
실시예 32	35번/*MP-203=1/1	AA	--
실시예 33	E번	AA	--
실시예 34	E번/*MP-203=1/3	AA	--
비교예 2	*MP-203	AA	CC
비교예 3	**PVA-117	AA	CC

* : *, ** kuraray Co.,Ltd 가

[35 46 4 9]

, TP - 3 3 1 3
5

35 46 4 9 , - , ()
(5) 가 . 가 , , ,

3

[3]

실시예	종합체 번호	디스코텍 화합물 번호	배향 특성	습기-열에 대한 저항성
실시예 35	1 번	TP-4	AA	AA
실시예 36	1 번	TP-5	AA	AA
실시예 37	1 번	TP-8	AA	AA
실시예 38	1 번	TP-17	AA	AA
실시예 39	1 번	TP-23	AA	AA
실시예 40	1 번	TP-28	AA	AA
실시예 41	39번	TP-4	AA	AA
실시예 42	39번	TP-5	AA	AA
실시예 43	39번	TP-8	AA	AA
실시예 44	39번	TP-17	AA	AA
실시예 45	39번	TP-23	AA	AA
실시예 46	39번	TP-28	AA	AA
비교예 4	폴리이미드	TP-4	BB	CC
비교예 5	폴리이미드	TP-5	BB	CC
비교예 6	폴리이미드	TP-8	BB	CC
비교예 7	*MP-203	TP-17	AA	CC
비교예 8	*MP-203	TP-23	AA	CC
비교예 9	*MP-203	TP-28	AA	CC

주의 : * :Kuraray Co., Ltd 로부터 구입 가능함

[47 52 10 11]

100 μ m
(0.1 μ m) 4() , 0.8 μ m (Fuji Photo Film Co., Ltd 가), 90

[]

4 1.0

18.0

6.0

, 100 m/min , 1000rpm 1kgf/cm() (80mm) ,

"|nx - ny| × d" " {(nx ny)/2 - nz} × d" , nx ny , , " | , nz , d , Re (AEP - 100, nx - ny | × d" " {(nx+ny)/2 - nz} × d" , Shimadzw Seisakusho, Ltd.) . " |nx - ny| × d" 6nm " {(nx+ny)/2 - nz} × d" 40nm , 가 , ,

, TAC

[디스코트 허드슨]

세를로오스 아세테이트 브티레이트 4 총량

(CAB 551-0.2, Eastman Chemical Co.로 부터 구입 가능함)

디스코텍 액정 화합물 TP-3 182 줄암풀

(상기 언급된 디스코드 학회를 No.)

제작자: 김민수 | 편집자: 김민수 | 사진: 김민수 | 출판부: 김민수 | ISBN: 978-89-99000-00-0 | 100쪽 | 15,000원

(V#360 Osaka Organic Chemical)

Industry Co., Ltd. 를 블터 그의 가능화)

관중학 개론

1985

3. 가족은 물론이고 대중에 꾸짖지만 다음, 피복에

120 3 가 . 120 가 (120 w/cm)
UV 1 . , 2μm ,

47 52 10 11
가

가

AA :

CC :

가 4

[4]

실시 예	중합체 번호	디스코릭 화합물 번호	결합 강도
실시 예 47	1 번	TP-3	AA
실시 예 48	39 번	TP-3	AA
실시 예 49	53 번	TP-3	AA
실시 예 50	1번/39번=1/1	TP-3	AA
실시 예 51	1번/53번=1/1	TP-3	AA
실시 예 52	39번/53번=1/1	TP-3	AA
비교 예 10	*MP-203	TP-3	CC
비교 예 11	**PVA-117	TP-3	CC

: * ** : Kuraray C., Ltd

가

가

가

47

52

가

가

가

,

10

11

2

가

47

52

(57)

1.

,

가

,

1

,

가

가

,

2.

3.

1

,

,

4.

1

,

,

5.

()

,

가

,

6.

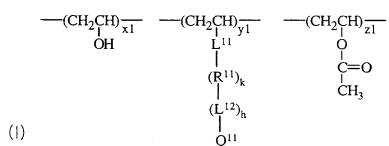
() 5 , , , , ,

7.

() 5 , 가

8.

() 5 , (I) :

(, L¹¹ , , ;R¹¹ :L¹² R¹¹ Q¹¹ :Q¹¹ , :

x1	10	99.9 %	, y1	0.01	80 %	, z1	0	70 %	, x1+y1
+z1=100	:								

k h 0 1)

9.

() 5 , 0.1 10 %

10.

() , , 가

11.

() 10 , 가 가 ,

12.

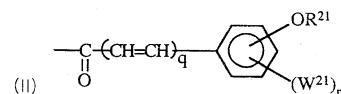
,

1

가

기

()



(, \mathbb{R}^{21}

, , , , , , , ,

,

W²¹

q 0 1 ;

n 0 4)

13.

12

,

14.

12

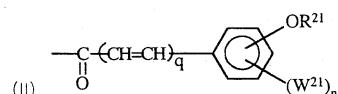
7

15.

()

가

()



(, \mathbb{R}^{21}

, , , , , , , ,

,

W²¹

q 0 1 :

N 0 4 .)

16.

$$(\quad) \quad 15 \quad , \mathbb{R}^{21} \quad , \quad , \quad , \quad : \quad W$$

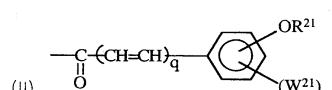
17.

18.

$$(\quad) \quad 15 \quad , \quad 0.1 \quad 10 \quad \% \\ (\quad) \quad .$$

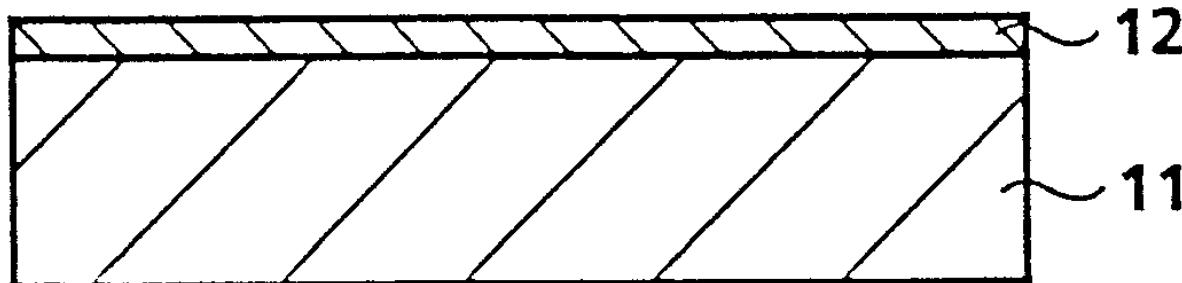
19.

() , , , 가 가 ()

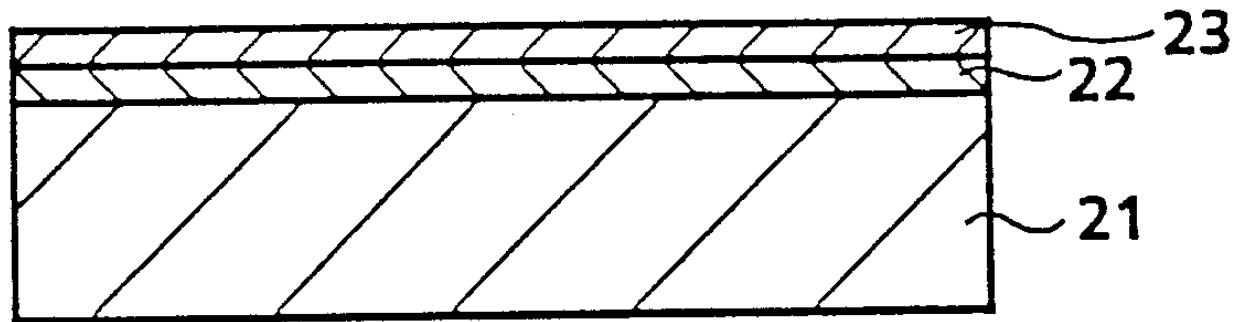


(\mathbb{R}^{21} , W^{21} , q_0^1 ; n_0^4)

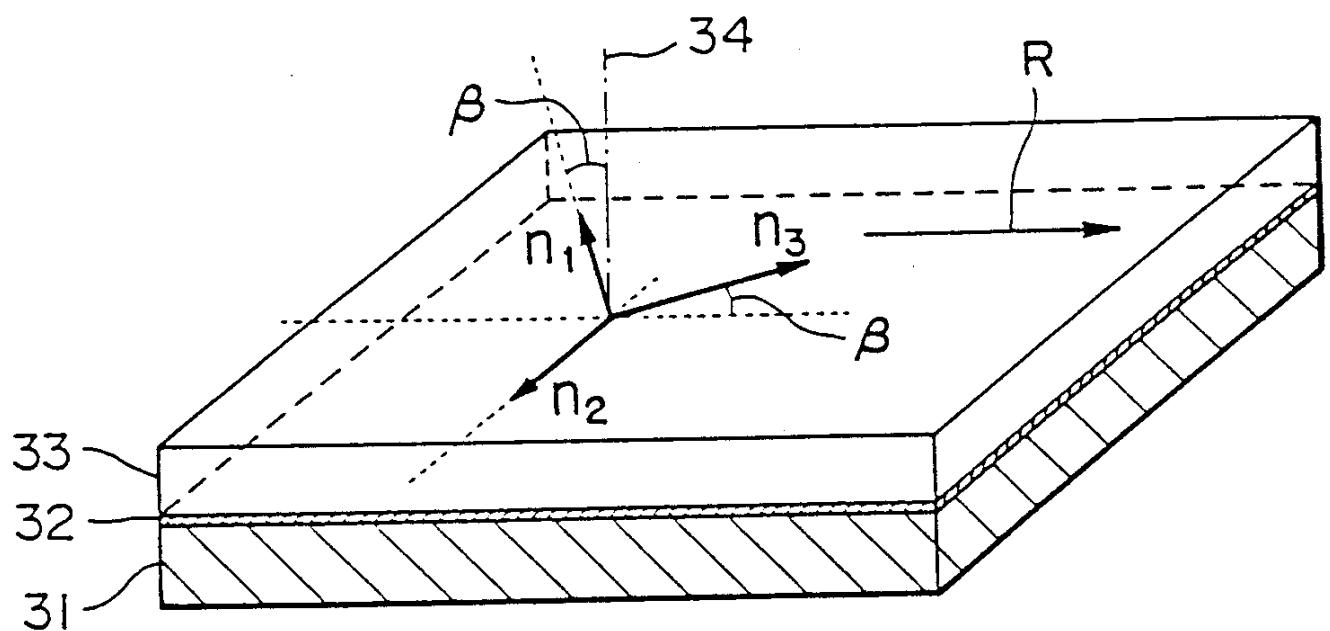
1



2



3



4

