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(12)

(KR)
(B1)

(51) Int. Cl.⁷
C09K 19/02
C09K 19/08

(45)
(11)
(24)

2003 07 07
10-0381517
2003 04 10

(21) 10-1995-0027524
(22) 1995 08 30

(65)
(43)

1996-0007732
1996 03 22

(30) 2666/94 1994 08 31 (CH)

(73) -6301 50

(72) -4313 10

-79541 가 16

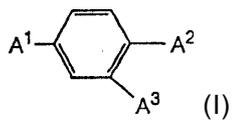
(74)

:

(54) - 가

- 가 (I)

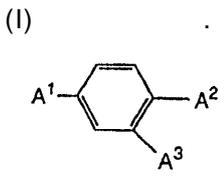
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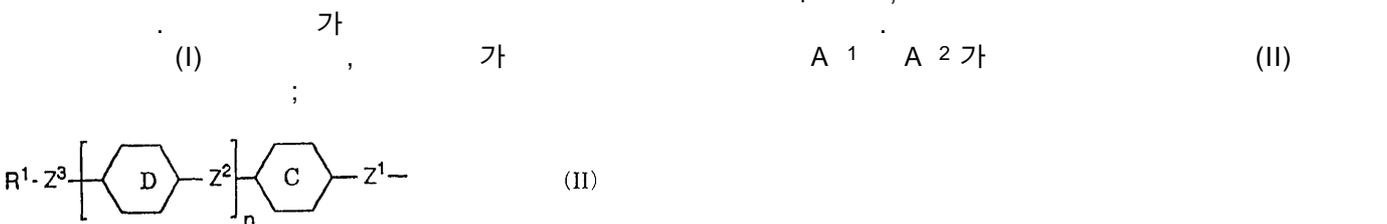
A¹ A²'
A³ 가 (mesogenic) ,

- 가 ,

가
 4 (piezoelectric property) 2016/94 (wave guide), 2017/9
 (Non-Linear Optical, NLO)
 2 (frequency doubling, SHC)
 가 가
 2 가 2
 가 가 25 100 25 가
 80 가 가
 2 가 가 SHG
 가 가 가 / () 가
 가 가 SHG
 가 가 SHG
 가 가 SHG

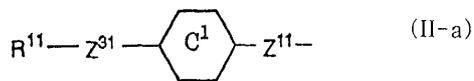


(I) 가 (mesogenic) ;
 A¹ A² 가
 A³ 가
 [Flussigkristalle in Tabellen, Deutscher Verlag für Grundstoffindustrie
 Leipzig, 1984, volume II] 가

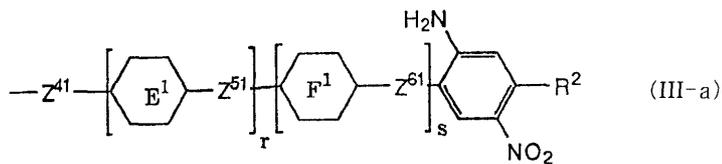


C D / 1,4- -2,5-
 -2,5- -1,4- -1,3- -2,5-
 Z¹ -CH₂CH₂-, -CH₂O-, -COO-, -OOC-, -(CH₂)₄- -(CH₂)₃O-
 Z² -CH₂CH₂-, -CH₂O-, -OCH₂-, -COO-, -OOC-, -(CH₂)₄-, -O(CH₂)₃-
 (CH₂)₃O-
 Z³ -(CH₂)_m-, -(CH₂)_mO-, -(CH₂)_mCOO- -(CH₂)_mOOC-
 n 0 1 ;
 m 1 16
 R¹ , / , 2- , 2-

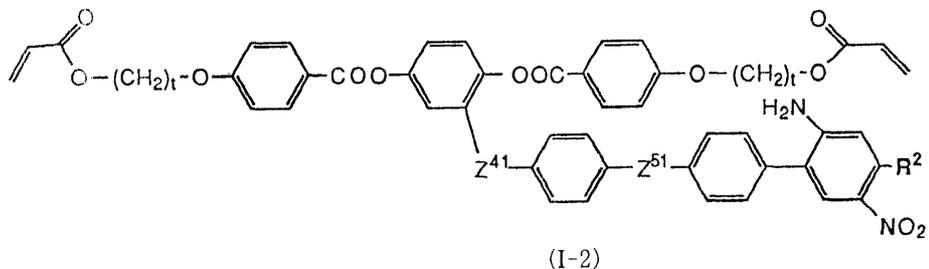
(S)- (R)-2- , (S)- (R)-2- , (S)- (R)-2- , (S)- (R)-2- (II-a) n=O (II)



R¹¹ Z³¹ -(CH₂)_t-, -(CH₂)_tO-, -(CH₂)_tCOO- -(CH₂)_tOOC- ;
 t 4 12 ;
 C¹ 1,4-, 2- -1,4- 3- -1,4-
 Z¹¹ -CH₂O-, -COO- -OOC- (III-a) (III) ;



R² (S)- (R)-2- , (S)- (R)-2- , (S)- (R)-2- , (S)- (R)-2- (S)-
 (R)-2- , (S)- (R)-2- (S)-
 (R)-2-
 r S 0 1 ;
 Z⁴¹ -CH₂CH₂CH₂-, -OCH₂CH₂-, -CH₂CH₂O-, -COOCH₂-
 CH₂OOC-
 Z⁵¹ Z⁶¹ , -CH₂CH₂-, -CH₂O-, -COO-, -OOC-, -(CH₂)₄- -(CH₂)₃O- ,
 E¹ F¹ 1,4- (I-1) (I-2)

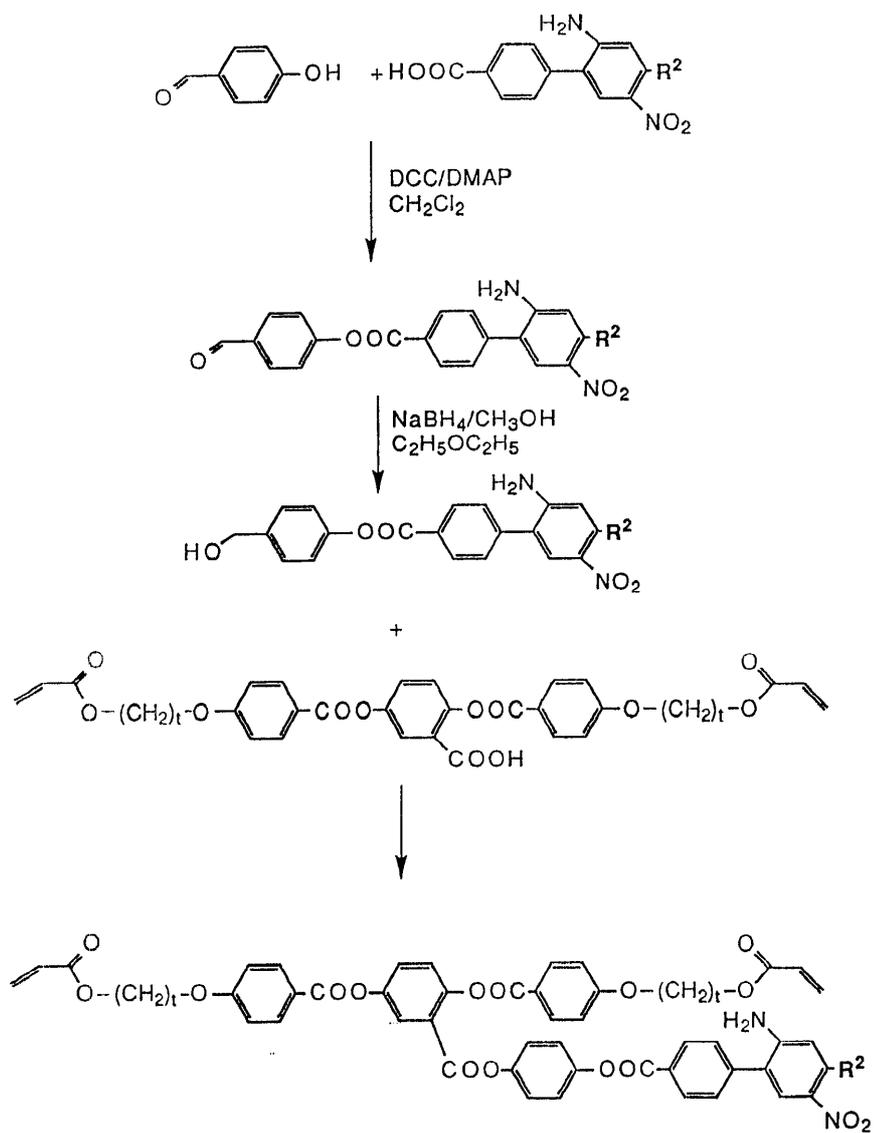


t 4 12 ,
 R² (S)- (R)-2- , (S)- (R)-2- , (S)- (R)-2- , (S)- (R)-2-
 (S)- (R)-2- ;
 Z⁴¹ -COOCH₂- ,
 Z⁵¹ , -COO- -OOC- (I) 가

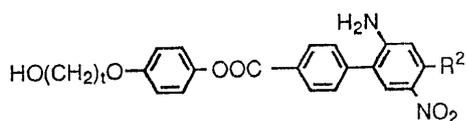
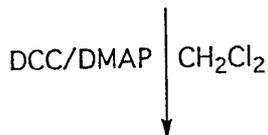
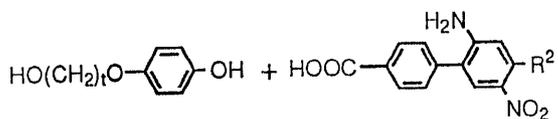
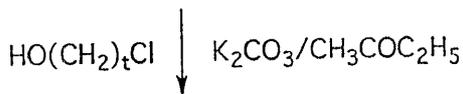
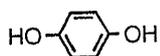
(II) (III)

BHT(2,6- -3 - -4- -

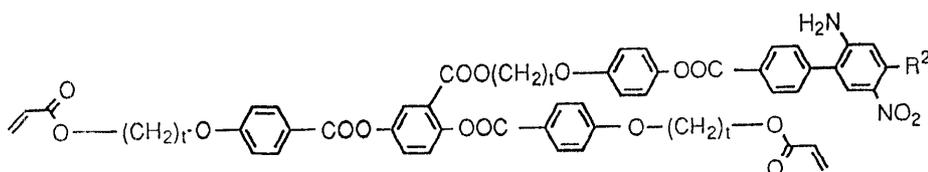
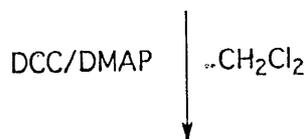
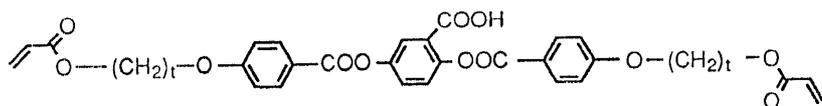
= ')



2

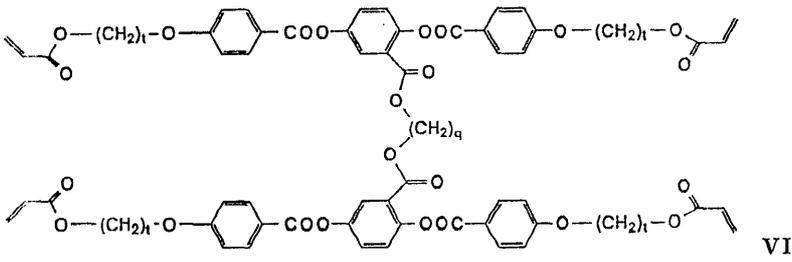
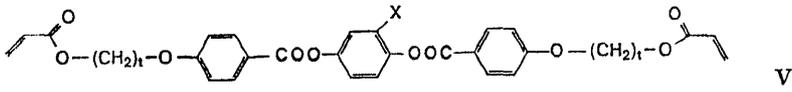


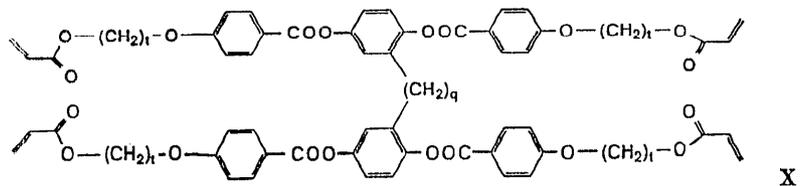
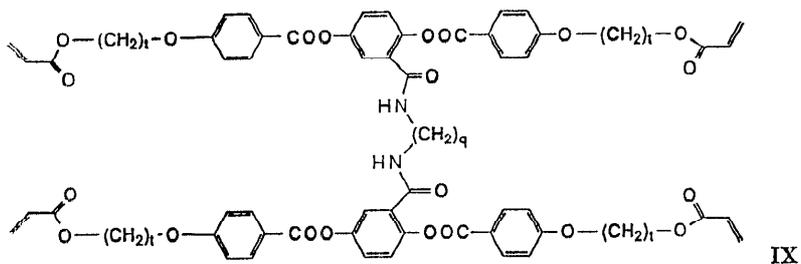
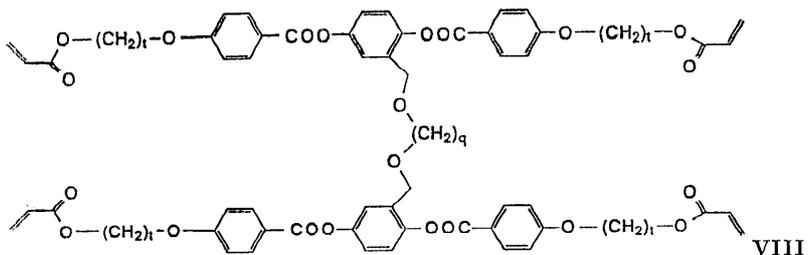
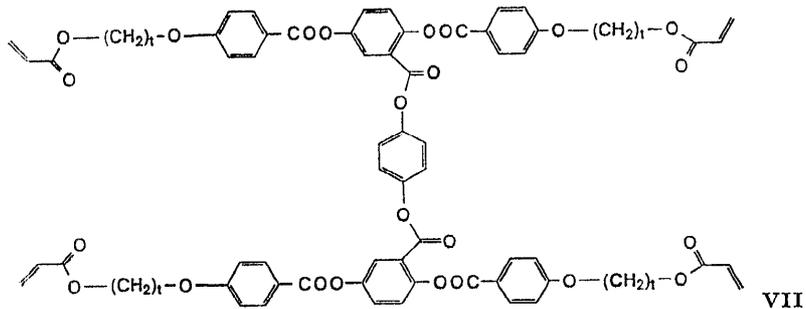
+



(I) (II) (III) [2,5-
 (4-[4n-
 (DCC; N,N'-dicyclohexylcarbodiimide) 4-(
 (I) 4-
 (Jones' reagent) (Mitsonobu) -t-
 (II) 2,5-
 (III))
 -[(S)-2-
 A¹ A²가
)-
 [2,5- (4-[n-
)]) (III))

(I) /
 2 (I) 1 가 (I) 2
 가 가
 (I) 100 % 가 (I) , 1
 ;





t 4 12 q 2 12
 (l) C, S, N* 가
 'ac(alternating current)' , 'dc(direct current)'
 '(,) 가 ,

20ml 0.6g 2,5- (4-[6-]) , 0.4g 4-[4-(2-
 -5- -4-[(S)-2-]-)] 0.04g 4-) 0.
 2g N,N'- , 100ml 50ml 3 가 . 100ml /
 2 (1:1) , ,
 2 0.4g (4-[4-(2- -5- -4-[(S)-2-])]-)- 2,5-
 (4-[6-]) ; (C-1) 100 , Sc* -N* , 96 , cl.p
 .(N* -1) 100 . (4-[4-(5- -2- -4-[(S)-2-])-])
 :
 (a) 0.13g 15ml 0 100ml 0.8g 4-[4-(2-
 -5- -4-[(S)-2-])]-]- 0

60 가 , 10 , 100ml .
 100ml 2 , 50ml 2 .
 100ml 가 2 ,
 (b) 20ml 1.0g 4-[4-(2- -5- -4-[(S)-2-]) , 0.3g 4-
 0.04g 4- 가 0.6g N,N'- , 100ml 50
 ml 3 100ml 2 / (1 : 1)
 -5- -4-[(S)-2-]) ; (C-1) 77-78 .
 (4-[4-(2- -5- -4-[(S)-2-])]) 2,5- (4-[7-
]) ;
 (4-[4-(2- -5- -4-[(S)-2-])]) 2,5- (4-[8-
]) ;
 (4-[4-(2- -5- -4-[(S)-2-])]) 2,5- (4-[9-
]) ;
 (4-[4-(2- -5- -4-[(S)-2-])]) 2,5- (4-[10-
]) ;
 (4-[4-(2- -5- -4-[(S)-2-])]) 2,5- (4-[11-
]) ;
 (4-[4-(2- -5- -4-[(S)-2-])]) 2,5- (4-[12-
]) ;
 (C-SA) 108 ; Cl.p. (SA-1) 112 ;
 [4-(2- -5- -4-[(S)-2-])] 2,5- (4-[7-
]) ;
 [4-(2- -5- -4-[(S)-2-])] 2,5- (4-[8-
]) ;
 [4-(2- -5- -4-[(S)-2-])] 2,5- (4-[9-
]) ;
 [4-(2- -5- -4-[(S)-2-])] 2,5- (4-[10-
]) ;
 [4-(2- -5- -4-[(S)-2-])] 2,5- (4-[11-
]) ;
 [4-(2- -5- -4-[(S)-2-])] 2,5- (4-[12-
]) ;
 2
 0.6g 2,5- (4-[6-]))- 0.4g (4-[4-(2- -5- -4-[(
 S)-2-])) , 0.04g 4- , 0.2g N,N'-
 -4-[(S)-2-])) 2,5- (4-[6-]))
 2ml 1 (4-[4-(2- -5- -4-[(S)-2-])])
 (4-[4-(2- -5- -4-[(S)-2-])])
 ;
 (a) 0.6g (4-[4-(2- -5- -4-[(S)-2-])) 0.2g (4-) , 0
 .04g 4- , 0.4g N,N'- 50ml
 1 0.4g (4-[4-(2- -5- -4-[(S)-2-])])
)
 (b) 50ml 5.0g 4- 3.7g 25g
 100ml 가 100ml 2 ,
 / (7 : 3) , 2.0g (4-
)
 ;
 (4-[4-(2- -5- -4-[(S)-2-])]) 2,5- (4-[7-
]) ;
 (4-[4-(2- -5- -4-[(S)-2-])]) 2,5- (4-[8-
]) ;

(4-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[9-

(4-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[10-

(4-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

(4-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[12-

[4-(2-
)]
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[7-]

[4-(2-
)]
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[8-]

[4-(2-
)]
-5-)
-4-[(S)-2-
])]]] 2,5- (4-[9-]

[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[10-

[4-(2-
])
-5-)
-4-[(S)-2-
])]]] 2,5- (4-[11-

[4-(2-
])
-5-)
-4-[(S)-2-
])]]] 2,5- (4-[12-

0.3g (4-[4-(2-
])
-5-)
-4-[(S)-2-
])) , 0.8g 4-
0.04g 4-
1
50MØ , 0.2g 2,5- (4-[11-
N,N'-
0.5g (4-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

(a) 1.0g 2,5- (4-[11-
])) 1.0g 1,4-
50MØ , 0.4g N,N'-
0.8g 4- 2,5- (4-[11-
])) , 0.04g 4-
1

3-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

5-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

6-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

7-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

8-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

9-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

10-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

11-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

12-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[11-

3-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[5-

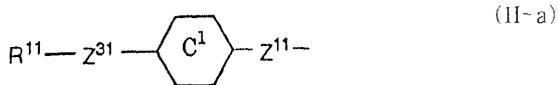
3-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[6-

3-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[7-

3-[4-(2-
])
-5-)
-4-[(S)-2-
]))]]] 2,5- (4-[8-

2.

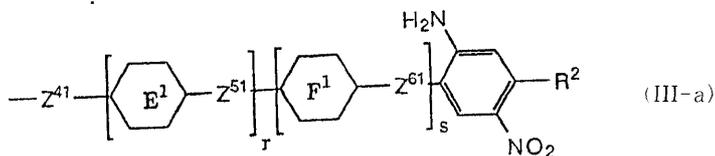
1, A¹, A²가 (II-a) :



R¹¹ ;
 Z³¹ -(CH₂)_t-, -(CH₂)_tO-, -(CH₂)_tCOO-
 -(CH₂)_tOOC- ;
 t 4 12 ;
 C¹ 1,4-, 2- -1,4- 3- -1,4- ;
 Z¹¹ -CH₂O-, -COO- -OOC- .

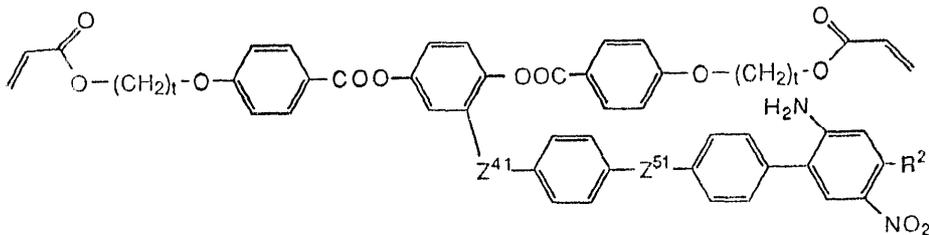
3.

1, A³가 (III-a) :



R² (S)- (R)-2-, (S)- (R)-2-, (S)- (R)-2-, (S)- (R)-2- ;
 (S)- (R)-2- ;
 r s 0 1 ;
 Z⁴¹ -CH₂CH₂CH₂-, -OCH₂CH₂-, -CH₂CH₂O-, -COOCH₂-
 -CH₂OOC- ;
 Z⁵¹ Z⁶¹ -CH₂CH₂-, -CH₂O-, -COO-, -OOC-, -(CH₂)₄- -(CH₂)₃O- ;
 E¹ F¹ 1,4- .

4.



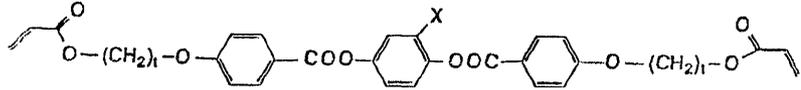
t 4 12 ;
 R² (S)- (R)-2-, (S)- (R)-2-, (S)- (R)-2-, (S)- (R)-2- ;
 (S)- (R)-2- ;
 Z⁴¹ -COOCH₂- ;
 Z⁵¹ -COO- -OOC- .

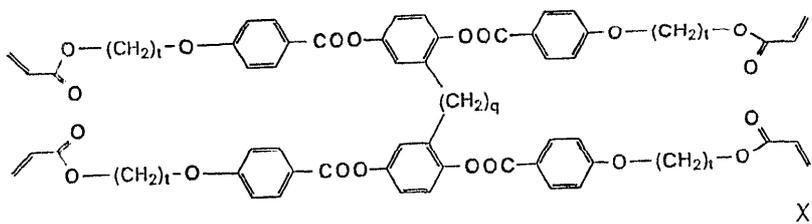
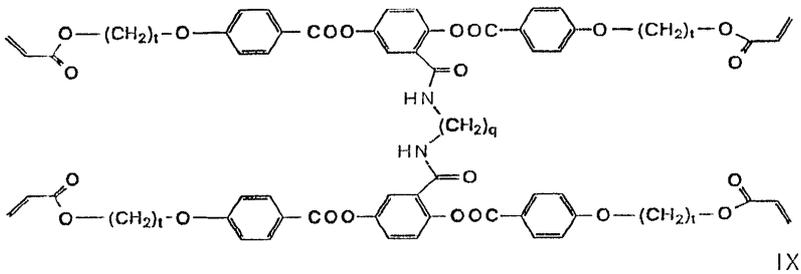
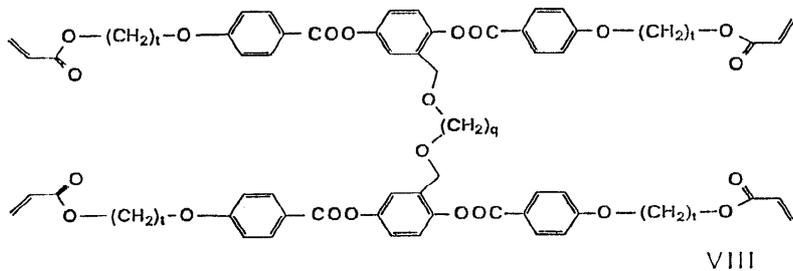
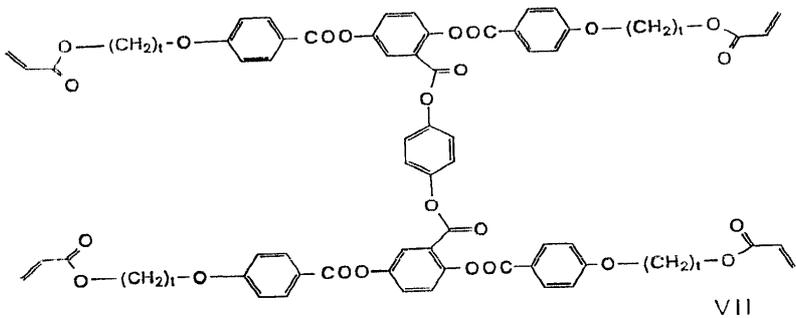
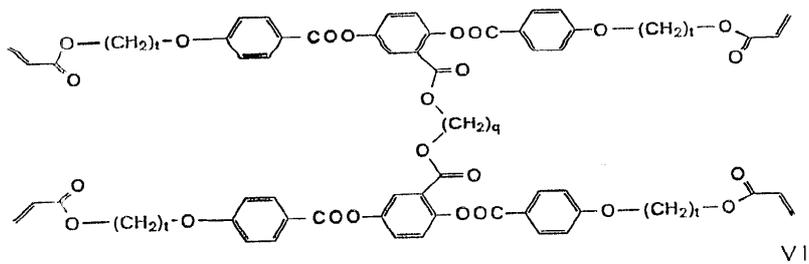
5.

2 1 1 (I) , 가

6.

5 (I) 가 ; (V) (X) 1





t 4 1,
 12 . q 2 12 .
7.
 1 4
8.
 5 6 가