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(12) (A)

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(30) 10160138.7 2001 12 07 (DE)

(71) -51368

(72) ,
47803 - - 15

,
47443 68

(74)

:

(54)

, , 1 - , 10 40
2 40 1
, 가 가 .

, , 가

A) 1 , 55 93.99 %,

B) , 3 15 %,

C) 1 - , 3 15 %,

D) 10 40
1 , 0.01 5 2 40
%,

E) 가 , 0 10 %

가 .

, ,

가 . 가
, 가 .

- , 가 4 가 (flame - retardant)
:

- ()

- - , (가
) . , .

- - ()

- - / - 가 , (200
가 가).

JP - A 03/281 652 , , -
가 . , (가 +5)

, .

EP - A 0932643 -

, (, 가) . ,

가

, , 1.6 mm, 1.0 mm

, , 10 ~ 40 1 1 2 ~ 40
-

(UL94 - V2, GWFI 960) ()
, 가

A) 1, 55 93.99 %,

B) , 3 15 %,

C) 1 - , 3 15 %,

D) 10 40
1 , 0.01 5 2 40
%,

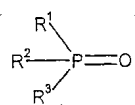
E) , , (, - (, 0 10 % (), 가 , 가

가 [A) E) % 100 %] .

C) I 1 가

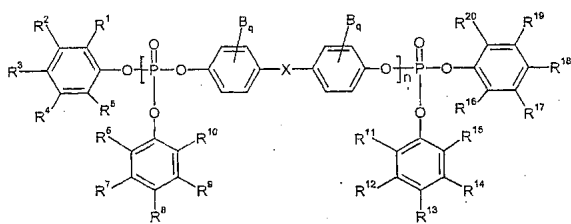
:

< I>



R¹, R² R³ 8 ~ 40 , ,

C) 1 1 가 :



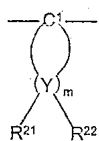
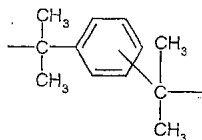
R¹ R²⁰ , 6 ,

n 0.5 50 ,

B C₁ - C₁₂ - , , ,

q 0, 1 2 ,

X, C₆-C₁₂ (C=O, S, O, SO₂, C(CH₃)₂, C₁-C₅, C₂-C₅, C₅-C₆)
II III :

 $\langle \quad || \rangle$  $\langle \quad ||| \rangle$ 
$$[\quad , Y \quad ,$$
$$R^{21} \quad R^{22} \quad Y \quad , \quad , \quad C_1 \sim C_6 \quad ,$$
$$m_4, m_5, Y, R^{21}, R^{22} \dots]$$

R¹ ~ R²⁰ , q = 0
X가 SO₂, O, S, C=O, C₂ ~ C₅ - , C₅ ~ C₆ - C₆ ~ C₁₂ -
. X = C(CH₃)₂ 가 .

가, C)가 , , -
(), 가 A
가 .

A) 1 가 가
55 ~ 93.99 %, 65 ~ 93 %, 75 ~ 93 % .

1 2 ~ 10 .

 $2 \sim 10$.

1 ~ C 4 - (: , , i- , n- , n- , i- t-) (:), C

В соответствии с требованиями законодательства Российской Федерации о персональных данных, сообщаем, что в отношении Вас не ведется обработка персональных данных, поэтому не требуется согласие на обработку персональных данных.

, 1,4- , 1,4- , 2 ~ 6 , 1,2- , 1,4- , 1,6-
 .

A) 2 ~ 6

%, A) (viscosity number) /o- (25 1:1) 0.5
70 ~ 220, 80 ~ 160
100 mval/kg, 50 mval/kg, 40 mval/kg
DE-A 44 01 055
(:)

A) (PET) (PBT)
A) 100 % 5
0 % , 10 ~ 30 %

PBT PET (recyclate)(PET)

:

- 1) (post-industrial recyclate): 가 , 가 ,
(sprue) , 가 ,
;
2) (post-consumer recyclate): 가 PET .
가 (ground) , , (pourability)

5 mm , 6 mm,
가 가 ()
0.01 ~ 0.7 %, 0.2 ~ 0.6 %

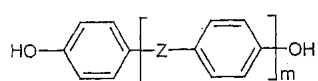
가

100 % 0 ~ 95 % , 80 % 20 % 5 ~

I

:

< I>



, Z 8

, 12

, m 0 ~ 2

C₁ ~ C₆ -

가

(母) :

,

-() ,

-() ,

-() ,

-() ,

-() ,

-() ,

, ' - -() ,

-() ,

-() ,

,

,

- - .

,

4- ,

2,4- -(4'-)-2- ,

, ' - -(3'- -4'-)

2,2- -(3'- -4'-) ,

2,2- -(4'-) ,

2,2- -(3',5-) ,

1,1- -(4'-) ,

3,4'- ,

4,4'- -

2,2- -(3',5'- -4'-) .

, 20 ~ 98 % 2 ~ 80 % .

.

(A) [-(4-)-2,2-

. , ,

A) 100 % , 90 % , 50 %

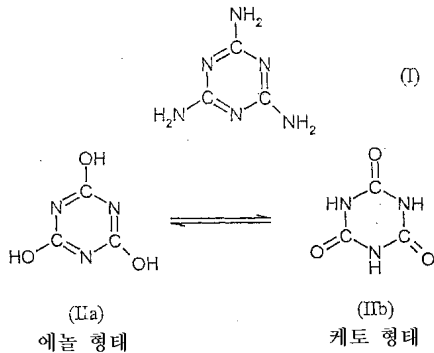
US-A 3 651 014

가 Hytrel (DuPont).

B) , 가 3 ~ 15 % , 3 ~ 10 % , 3 ~ 6 %

(B) (I)

(IIa IIb)



90 100 d 5

C) A) E) , 3 15 % , 3 10 % ,

가 C) () - 가 -3 +5 .
['Lehrbuch der Anorganischen Chemie' by A.F. Hollemann and E. Wiberg, Walter des Gruyter amp; Co. (1964, 57th to 70th Edition), pages 166 to 177]

가 -3 +5 (-3), (-2), (-1), (+0),
(+3), (+4) (+5)

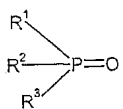
가 -3

가 -2

가 -1

I 가

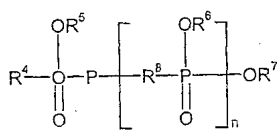
< I>



, R¹, R² R³ 8 40

, -(n-) , -(n-) , -(n-) ,

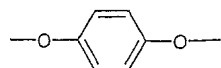
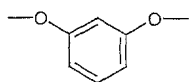
() , -(n-) 가 . , ,
 ,
 가 ± 0 ,
 ' +1 가 (double)
 1,10- ,
 , -p- ,
 - () ,
 () ()
 - ()
 - ()
 +3 ,
) , (2,4- -t-) +3 , (4-
 ()
 -1,2- -()
 ,
 가
 +4 , ()
 +5 , - (3,5,5-) , 2- (,
) , (2-)-p- , (2-
) (2,5,5-) 2- , ()-p- , p-
 가
 -() -



:

R⁴, R⁷ 6 20 , 1 4 ,

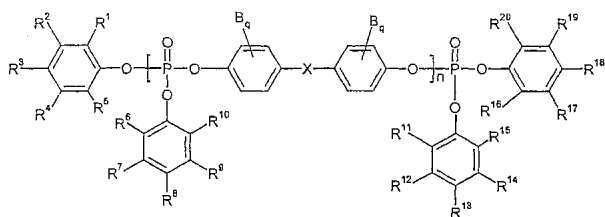
R⁸ ,



n 1 100, 1 5 .

, 가 I .

< I>



R 1 R 20 , 6 ,

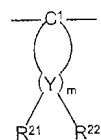
n 0.5 50 가 ,

B C 1 -C 12 , , , ,

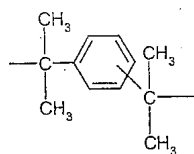
q 0, 1 2 ,

X , C=O, S, O, SO 2 , C(CH 3) 2 , C 1 -C 5 , C 2 -C 5 , C 5 -C 6 II III ,
C 6 -C 12 , 가 , II III .

< II>



< III>



, Y ,

Y R 21 R 22 C 1 -C 6 , , ,

m 4 7 , 4 5 , Y , R 21 R 22 가 .

R 1 R 20 , q 0 I , X
가 SO 2 , O, S, C=O, C 2 -C 5 , C 5 -C 6 C 6 -C 12
. X가 C(CH 3) 2 가 .

10 n - . n 1 가 60% n 100%,
. n 0.5 5, 0.7 2.5 79% 100% 가 100% .

%, 0 4%, 0 2.5%, 5%,
I (EP-A 363 608, EP-A 640 655),
(; [Ullmann's Encyklopaedie der Technischen Chemie
, Vol. 18, p. 301 ff. 1979]; [Houben-Weyl, Methoden der Organischen Chemie, Vol. 12/1, p.43]; [Beilstein V
ol. 6, p.177]).

가 A (A -
A , BDP) , Fyroflex BDP(Akzo Nobel Chemicals BV,
Amersfoort, Holland), Ncendx P-30(Albemarle, Baton Rouge, Louisiana, USA), Reofos BAPP(Great Lakes, W
est Lafayette, Indiana, USA) CR 741(Daihachi, Osaka, Japan).

가, () ,
가 .

DE-A 20 36 173

500 7,000, 700 2,000 .

-1 .

, - - (I)- ()
DE-A 31 40 520 +1 .

, , , , 2,3,5-
, A A .

가,

([Houben-Weyl-Mueller, Thieme-Verlag Stuttgart, Organische Phosphorverbindungen Part
II (1963)]). (

DE-A 29 25 208)

US-A 4 403 075) . () .

, EP-B 8 486 (; Mobil A
ntiblaze 19 (Mobil Oil)) .

D) , 10 40, 16 22
2 6 1
0.01 5 40, 0.05 3 %, 0.1 2 % .

, , (30 40 , 가 ,) ,

1가 4가 . n- , n- , ,

, (6-) , .

[illegible]

[Houben-Weyl, Methoden der Organischen Chemie, Vol. 14/1 (Georg Thieme-Verlag, Stuttgart, 1961), pp. 392 to 406] [C.B. Bucknall, 'Toughened Plastics' (Applied Science Publishers, London, 1977)]

.
 , EPM
 20
 EPDM
 - , -1,5- , 2,5- , -1,5- 2,5- -1,4- , -1,4-
 -2- , 5- -2- , 2- -5- , 2- -5- , 5-
 3- (5.2.1.0.2.6) -3,8-
 -1,5- , 5-
 0.5 50 %, 1 8 %
 . EPDM

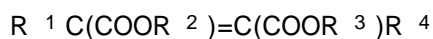
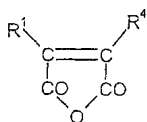
EPM EPDM

가 (; ())

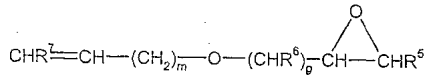
가 () () (;),

I II III IV () ,

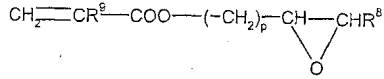
가

 $\langle \quad | \rangle$  $\langle \quad || \rangle$ 

< III>



< IV>



, R¹ R⁹ 1 6 , m 0 20 , g 0 10
, p 0 5 .

, R¹ R⁹ , m 0 1 , g 1 .
, , , .

I, II IV

, , () , t-
, 가 , , .

, 0.1 20 50 98 %, () ()
, .

50 98 %, 55 95 %, .

%, 0.3 20 () %, , () () 0.1 40
, .

n- () 2- 1 45 %, 10 40 %
, .

() , , i- t- .

, .

mulsion Polymerization)'

, 가 (Blackley) ' (E
, .

, .

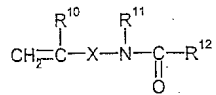
, n- 2- ,

, , 가 , , , , ,

(가 0) ; (

1 (가 20)

, , , p- ,
가



R¹⁰ C₁-C₄ ,

R¹¹ , C₁-C₈ ,

R¹² , C₁-C₁₀ , C₆-C₁₂ -OR¹³ ,

R¹³ O N C₁-C₈ C₆-C₁₂ ,

X , C₁-C₁₀ C₆-C₁₂ $\text{—}\overset{\text{O}}{\underset{||}{\text{C}}}\text{—Y}$,

Y O-Z HN-Z ,

Z C₁-C₁₀ C₆-C₁₂ .

P-A 208 187

가 , , (N,N-) , (N,N-) (N-t- (N,N-))

, 가 . 가 EP-A 50 265 -1,3- ,

, 2 가

, () 가 . ,

, , , 가 , US-A 4 148 846

3 % 가 5 % ,

I	-1,3- , , n-	, ,
II	I , 가	I
III	I II	n- , -1,3- , , ,
IV	I II	I III ,
V	, ,	I II 1 , I IV 2

, ABS () ASA 40 % PBT
 40 %
 Ultradur s(BASF AG Utrablend S) 가 . ABS/ASA
 Terlbend (BASF AG) .

, , -1,3- , n-
 . 가

n- / () , n- /
 n- / , n-
 ,
 가 .

DE - A 37 25 576, EP - A 235 690, DE - A 38 00 603 EP - A 319 290

, () , ,
 , 가 1 % . , 가

UV 2 % , 가

, , ,
 , , ,
 , 가 가 , ,
 , 가 .

0.3 % , 1 % , 0.5 % ,

: Ca Zn 1 % (: - - (:) , (가 28) ,
 32 C) , 가 .

가 , , , , N-(n-)

(PTFE), , 가

가 (50 %)

(Schildknecht) [' (Vinyl and Related Polymers)', Wiley Publishers, 1952, pp. 484-494] (Wall) [' (Fluoropolymers)', Wiley Interscience, 1972]

d 50 () 0.05 10 μm, 0.1 5 μm .

가 , , () , 가

230 290 .

2 , B) D) 가 E) A)

가 , 가

- A: PBT Pocan B 1300 000000(Leverkusen Bayer AG)
- B: (Melapur MC 25, Heerlen DMS-Melapur)
- C/1: A (Reofos BAPP, West Lafayette Great Lakes)
- C/2: (Disflamoll TP, Leverkusen Bayer AG)
- D: (E wax, Frankfurt am M. Hoechst)
- E/1: , PBT Pocan B 1300 000000 10%
- E/2:
- F(): (CS 7962, Leverkusen Bayer AG)

A	94.6	90.6	90.6	64.6	60.6	60.6
B	2.0	4.0	4.0	2.0	4.0	4.0
C/1	2.0	4.0	- -	2.0	4.0	- -
C/2	- -	- -	4.0	- -	- -	4.0
D	0.3	0.3	0.3	0.3	0.3	0.3
E/1	1.0	1.0	1.0	1.0	1.0	1.0
E/2	0.1	0.1	0.1	0.1	0.1	0.1
F	- -	- -	- -	30	30	30

IZOD	ISO 180/IU 23	99 kJ/m ²	79 kJ/m ²	78 kJ/m ²	39 kJ/m ²	41 kJ/m ²	47 kJ/m ²
UL94, 0.8 mm			V - 2	V - 2			
m	(IEC - 695 - 2 - 1) 2 m	960	960	960	700	700	700

(57)

1.

A) 1, 55, 93.99 %, 1, 0.01, 5, 40

B) 3, 15 %, 1, 0.01, 5, 40

C) 1, 3, 15 %, 1, 0.01, 5, 40

D) 10, 40, 1, 0.01, 5, 40

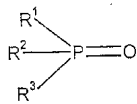
E) 1, 0.01, 5, 40, 1, 0.01, 5, 40

가 [A) E) % 100 %].

2.

1, C) 1, 가 :

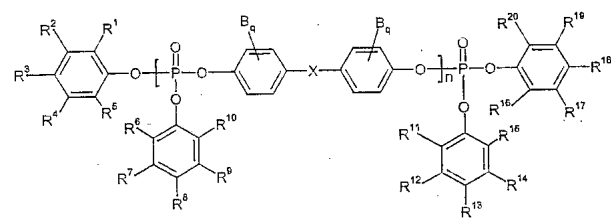
< I>



R¹, R², R³ 8, 40, , ,

3.

1, C) 1, 가 :



R¹, R²⁰, 6, ,

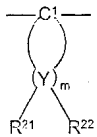
n 0.5 50 ,

B C₁-C₁₂ - , , , ,

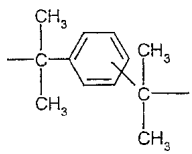
q 0, 1 2 ,

X , C=O, S, O, SO₂, C(CH₃)₂, C₁-C₅ - , C₂-C₅ - , C₅-C₆ -
(, C₆-C₁₂ - II III :)

< II>



< III>



[, Y ,

R²¹ R²² Y , , C₁ ~ C₆ - ,

m 4 7, 4 5 , Y R²¹ R²²].

4.

1 3 , C)가 , A , - (), , 가 .

5.

1 4 , D)가 가 .

6.

1 5 , A)가 가 .

7.

1 6 , A)가 가 .

8.

1 7 , 10 30 % 가 .

9.

1 8 , 가 0.01 0.7% 가 .

10.
1 9 가 , , .

11.
1 10 가 , .