(19) (KR)
(12) (A)

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: 18

(71)

-51368

(72)

,
41542 5

,
47239 23

,
50679 5

(74)

,

(54)

(57)

, , ,
, A) 10 85 , 30 80 , 40
70 , , B) 10 50 ,
15 40 , 20 35 - , C) 5 50 ,
7 35 , 8 25 , ,
D) 0 2 , 0 1 (
), E) 0 10 , 0.01 5 ,
0.1 3 , D
- (, A + B + C + D + E 100
), ,
.

1

A) 10 85 , ,

B) 10 50 - ,

C) 5 50 , (size) (sized) ,

D) 0 2 ,

E) 0 10

, D) .

2

1 , 15 40 - (B) .

3

1 , 20 35 - (B) .

4

1 3 , 0 1 (D) .

5

1 3 , (D) .

6

1 5 , C

C.1 , (chopped) 1 ,

C.2 ,

C.3

.

7

6 , C ,

C.2.1 C.2 50 100 % ,

C.2.2 C.2 0 50 % , , , - , - 1

C.2 .

8

7 , C.2.1 ,

C.2.1.1 ,

C.2.1.2 2

.

9

8 , 2 C.2.1.2 A .

10

1 9 , C 0.1 1 % .

11

1 10 , C 5 25 μm .

12

1 11 , E , , , , , , , , C , 1 .

13

1 12 , B

B.1 B 70 80 % , - 1 ,

B.2 B 20 30 % , , ( ) (C_1-C_8) , 1 - .

14

13 , B.1 B.2 .

15

1 14 , D .

16

15 , D , , - .

17

1 16 .

18

1 16 .

[0001] , , , , .

[0002] , ABS (- -) .
, ,
.

[0003] ,
. .
. ,
, . ,
, . ,
,
.
, , (processing window)
. ,
, , , .
,
, .

[0004]
.

[0005] WO-A 00/39210 , ,
, , ( ), -
. .
(size) .

[0006] EP-A 1 240 250 , ,
, 10 93 % , 3 50 %
, 3 50 % , 1 20 % ,
.

[0007] EP-A 0 624 621 , 10 80 % , 10
80 % , 5 50 % ,
.

[0008] EP-A 0 345 652 , , 10 75 %
, 10 50 % , 50 % , 0.5 50
% tert- ( ) , 5 50 % ( )
.
, .

[0009] , , - (-
), (2 %)
.

[0010] 2 % ,
.

[0011] , ,
- .

[0012] WO-A 84/04317 , , ,

(unsized) .

[0013] EP-A 0 647 679 , , , - / ( ) . .

[0014] EP-A 1 038 920 , , (20% , 30% -), . (, , ,) . , - .

[0015] WO-A 2006/040087 , , , , , . , - - 1 . , .

[0016] , - , , .

[0017] , , ( ), .

[0018] ,

[0019] A) 10 85 , 30 80 , 40 70 , ,

[0020] B) 10 50 , 15 40 , 20 35 - ,

[0021] C) 5 50 , 7 35 , 8 25 , ,

[0022] D) 0 2 , 0 1 ( ),

[0023] E) 0 10 , 0.01 5 , 0.1 3

[0024] ,

[0025] D) (, A + B + C + D + E 100) .

[0026] **A**

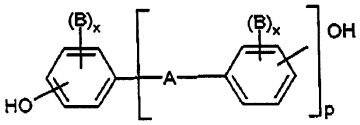
[0027] A /

(
, [Schnell, "Chemistry and Physics of Polycarbonates", Interscience Publishers, 1964], DE-AS 1 495 626 , DE-A 2 232 877 , DE-A 2 703 376 , DE-A 2 714 544 , DE-A 3 000 610 , DE-A 3 832 396 ; , DE-A 3 077 934).

[0028] , , 3 , , , , / , . .

[0029] / 1 .

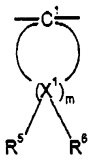
1

[0030] 

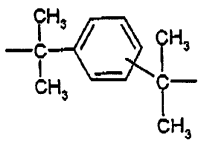
[0031] ,

[0032] A , C_1 C_5 , C_2 C_5 , C_5 C_6 , -O-, -SO-, -CO-, -S-, $-SO_2-$, C_6 C_{12} , 2 3 ,

2

[0033] 

3

[0034] 

[0035] B C_1 C_{12} , , , / ,

[0036] x 0, 1 2 ,

[0037] p 1 0 ,

[0038] R^5 R^6 X^1 C_1 C_6 , ,
,

[0039] X^1 ,

[0040] m 4 7 , 4 5 , X^1 R^5 R^6 .

[0041] , , , ( )-C_1-C_5- , ( )-C_5-C_6- , ( ) , ( ) , ( ) , ( ) α,α- ( ) - / - .

[0042] 4,4'- , A, 2,4- (4-)-2- , 1,1- (4-)- , 1,1- (4-)-3,3,5- , 4,4'- , 4,4'- 2- 4 , , 2,2- (3- -4-) , 2,2- (3,5- -4-) 2,2- (3,5- -4-) . 2,2- (4-) (A) .

[0043] .

.

[0044] , , , p- , p-tert- 2,4,6- , , DE-A 2 842 005 4-[2-(2,4,4-)] , 4-(1,3-) 8 20 , 3,5- -tert- , p- - , p-tert- , p- 2-(3,5-) 4-(3,5-) . 0.5 % 10 % .

[0045] , , 0.05 2.0 % 3 , 3 .

[0046] . 1 25 %, 2.5 25 % , A . (US 3 419 634) . DE-A 3 334 782 .

[0047] , A , A 15 % , 2,2- (3,5- - 4-) .

[0048] , , -4,4'- -2,6- . 1:20 20:1 .

[0049] , 2 .

[0050] , , C_1 C_{22} , C_2 C_{22} .

[0051] 0.1 10 % .

[0052] .

[0053] (DE-A 2 940

024 DE-A 3 007 934).

[0054] , , ( ) 0.01 1.0 % , 3 , , , 3,3',4,4'- , 1,4,5,8- , 0.01 1.0 % , 3 , , 4,6- -2,4,6- -(4-) -2- , 4,6- -2,4,6- -(4-) , 1,3,5- -(4-) , 1,1,1- -(4-) , -(4-) , 2,2- [4,4- (4-)] , 2,4- (4-) , -(4-) , 2,6- (2- -5-)-4- - , 2-(4-)-2-(2,4-) , -(4- [4-]) 1,4- [4,4'-)] . , .

[0055] . , 100 % , 80 % , 50 % . .

[0056] , A - Mw (GPC,) 23,000 g/ 40,000 g/ , 24,000 g/ 35,000 g/ , 25,000 32,000 g/ .

[0057] **B**

[0058] , B

[0059] B.1 70 80 %, 72 78 %, 75 78 % (B) , (, α-) - (, p- p-) 1 ,

[0060] B.2 20 30 %, 22 28 %, 22 25 % (B) , (, ,), ( ) (C_1-C_8) (, , n- tert-), (N-) 1

[0061] - .

[0062] B . , B (B.1) (B.2) - .

[0063] , , , .

[0064] ( ) (M_w) (, GPC,) 15,000 250,000 g/ , 50,000 200,000 g/ , 80,000 160,000 g/ .

[0065] **C**

[0066] , C

[0067] C.1 (strand) ( ), (chopped) 1 ,

[0068] C.2 ,

[0069] C.3

[0070] .

[0071] C.2 C.3 C 0.1 1 %, 0.2 0.8 %, 0.3 0.7 % C .

[0072] C.1 E-, A- C- . 5 25 μm, 6 20 μm, 7 15 μm . 5 50 mm, 5 30 mm, 7 25 mm . WO-A 2006/040087 . 70 % 60 μm .

[0073] C.2

[0074] C.2.1 50 100 %, 70 100 %, 80 100 % (C.2) ,

[0075] C.2.2 0 50 %, 0 30 %, 0 20 % (C.2) 1

[0076] .

[0077] , C.2 C.2.1 (, C.2 C.2.2).

[0078] C.2.1 , .

[0079] , C.2.1

[0080] C.2.1.1 ,

[0081] C.2.1.2 2

[0082] .

[0083] C.2.1.2 , , 1 . C.2.1.2 A .

[0084] C.2.2 , , - , - 1 .

[0085] C.3 . , , , , , 1 3 , 3 . , , , , γ- , β-(3,4-) , γ- , N-β-( )-γ- , γ- , N- -γ- , γ- γ- 1 C.3 . C.3 .

[0086] **D**

[0087] D

[0088] D.2 30 95 %, 40 90 %, 50 80 % , 10 , 0 , -20

[0089] D.1 5 70 %, 10 60 %, 20 50 % 1

[0090] 1 .

[0091] D.1

[0092] D.1.1 50 99 / - (, α- , p- , p-) / (C_1-C_8) , ,

,

[0093] D.1.2 1 50 (,) / (C_1-C_8) ( ) , , n- , t- , / ( ), N-

[0094] .

[0095] D.1.1 , α- 1 ; D.1.2 , 1 . D.1.1 D.1.2 D.1.1 D.1.2 .

[0096] D D.2 , , . D.2 , - 1 . , D.2 - 1 .

[0097] D.2 , D.2 40 % , . C_1 C_8 , , , , n- 2- ; , -C_1-C_8- , , .

[0098] , . 3 8 C 3 12 C 1 , 2 4 OH 2 20 C , , ; , ; , - ; . , , 3 . , , -s- , . D.2 0.02 5 %, 0.05 2 % . 3 , D.2 1 % .

[0099] D.2 " " , , α- , , -C_1-C_6- .

[0100] D.2 , DE-OS 3 704 657 , DE-OS 3 704 655 , DE-OS 3 631 540 DE-OS 3 631 539 , .

[0101] D , .

[0102] D.2 (d_{50}) 0.05 1 μm, 0.07 0.5 μm, 0.1 0.4 μm . d_{50} 50 % 50 % . ([W. Scholtan, H. Lange, Kolloid, Z. und Z. Polymere 250 (1972), 782-1796]).

[0103] D.2 ( ) 30 % , 40 % , 50 % . 25 ([M. Hoffmann, H. Kroemer, R. Kuhn, Polymeranalytik I and II, Georg Thieme-Verlag, Stuttgart 1977]).

[0104] ,

, D ( )
. ,
, ( ) .

[0105] **E)**

[0106] E , (,
A), (,
), , , , ,
, C (, , , , $CaCO_3$),
( ) .

[0107]

[0108] , , , 2
200 320 , 240 300
- (melt-compounding) - .

[0109] , , 20 ( )
.

[0110] , 2 , A, B, D E
C .

[0111] , .

[0112] .
, .
.

[0113] , (profile), , , ,
; , , , ,
; , , , , , ( )
, , ,
. , , , ,
, , ,
(cladding), , , ,
, , ,
.

[0114]

[0115] **A:**

[0116] - M_w 28,000 g/ (GPC) A .

[0117] **B-1:**

[0118] 23 % - 130,000 g/ SAN .

[0119] **B-2:**

[0120] , : : 20 : 28 : 52 % ABS .

[0121] **C-1:**

[0122] 13 μm A
. C-1 0.6 % .

[0123] **C-2:**

[0124] 13 μm . C-2 0.4

% .

[0125] **D:**

[0126] (Metablen)® SRK200 ((Mitsubishi Rayon),): , - - .

[0127] **E-1:** .

[0128] **E-2:** .

[0129] ---

[0130] (Werner & Pfleiderer) ZSK-25 2 260 . 260 300 80 (Arburg) 270 E .

[0131] ISO 11443 260 1000 s^{-1} .

[0132] 80 mm x 10 mm x 4 mm ISO 180-1U 23 . 260 300 . a_K .

[0133] $$\text{가공 안정성} = \frac{a_K^{260°C} - a_K^{300°C}}{a_K^{260°C}} * 100\%$$

[0134] ISO 527 260 .

[0135] (ESC) . (strain jig) 2.4% , 260 80 mm x 10 mm x 4 mm . ISO 4599 .

[0136] 120 1500 , 260 80 mm x 10 mm x 4 mm , ISO 180-1U 23 .

[0137] 6 VW PV 1303 , 260 60 mm x 40 mm x 2 mm ( ) UV .

1

성형 조성물 및 이들의 특성

성분 [중량부]	1 (cp.)	2 (cp.)	3 (cp.)	4	5 (cp.)	6 (cp.)	7 (cp.)	8	9 (cp.)	10	11	12
A PC	60.64	60.64	60.64	60.64	49.75	49.75	49.75	49.75	61.81	61.94	49.46	43.52
B-1 SAN	-	28.83	-	28.83	-	29.85	-	29.85	21.93	26.97	29.67	25.72
B-2 ABS	28.83	-	28.83	-	29.85	-	29.85	-	-	-	-	-
C-1 GF (에폭시-사이징함)	-	-	9.94	9.94	-	-	19.90	-	9.97	9.99	19.78	29.67
C-2 GF (PU-사이징 함)	9.94	9.94	-	-	19.90	19.90	-	-	-	-	-	-
D 메타블렌 SRK200	-	-	-	-	-	-	-	-	5.98	0.50	0.49	0.49
E-1 PETS	0.50	0.50	0.50	0.50	0.40	0.40	0.40	0.40	0.20	0.50	0.49	0.49
E-2 이르가녹스(Irganox) B900	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
특성												
내충격성 $a_{k\ 260°C}$ [kJ/m²]	30	25	43	39	23	27	n.m.	40	39	37	40	38
내충격성 $a_{k\ 300°C}$ [kJ/m²]	33	17	n.m.	35	n.m.	n.m.	n.m.	n.m.	39	37	37	38
가공 안정성 [%]	-10.0	32.0	n.m.	10.3	n.m.	n.m.	n.m.	n.m.	0.0	0.0	7.5	0.0
용융 점도 [Pas]	315	193	329	229	333	187	356	202	247	212	198	233
탄성 모듈러스 [MPa]	3736	5147	3961	5070	5729	7000	5994	7488	4623	5189	7604	10178
ESC – 파손까지의 시간 [h]	1.5	0.1	n.m.	21	0.5	0.02	n.m.	19	2.5	11	8	0.07
열 노화에 의한 인성 변화율 (120°C 에서 1500h) [%]	n.m.	n.m.	n.m.	n.m.	-41	n.m.	n.m.	+4	n.m.	n.m.	n.m.	n.m.
고온 광 노화에 의한 색상 변화 (6 주기의 그레이 스케일의 변화)	n.m.	n.m.	n.m.	n.m.	-1.5	n.m.	n.m.	+/- 0	n.m.	n.m.	n.m.	n.m.

n.m. = 측정안함

[0138]

[0139] (1, 3, 5, 7 9)

SAN (9)

(4, 8, 10 12)

1 . , (5),

. (

1, 2, 5 6)

. - (

2 6) , . ,

, , ,

(4, 8, 10 12) .