

(19)
(12)

(KR)
(A)

(51) 。 Int. Cl. ⁷
C08J 5/18

(11)
(43)

2001 - 0104697
2001 11 26

(21)	10 - 2001 - 7009026
(22)	2001 07 18
	2001 07 18
(86)	PCT/EP2000/00853
(86)	2000 02 03

(87)	WO 2000/47661
(87)	2000 08 17

(81)

가

가

가

가

가

가

AP ARIPO : 가

EA :

EP :

OA OAPI : 가

(30) 19905415.0 1999 02 10 (DE)

(71) $\frac{1}{2} \times 10^6 = 500,000$.
 , - 66539 ,

$$(72) \quad \begin{array}{llll} & , & & \\ & , \quad -66424 & , & 11 \\ & , & & \\ & , \quad -66265 & , & 26 \end{array}$$

(74)

(54) 2

가 (layered silicate) , (oriented) .

(laser - markable), (transparent), (oriented polyolefin film) .

(polymeric material) (marking) .
 (wavelength range) (radiation)
 가 (radiation - sensitive additive) . 가 (laser pigment) .

2 (biaxially oriented), 가 3 μ m 100 μ m
 (polyolefin film) 가 2 (thermal stability), (a
 appearance) , , 가 , 가
 (haze) 가 (gloss) .

, , 2
 . , 가 가 .
 (through hole) , 가
 (fisheye) (bubble) 가 .

가 (metal oxide) (layered silicate)
 () (multilayer) ,
 (sub - claims) .

, 85 % , 90 % 100 %
 , 98 % 100 % , .

, 2 8 , ,
 (copolymer) .

, 90 % , 94 % 100 % , 98 %
 100 % 10 % 0 % 6 % 0 % 2 %
 (comonomer) , .
 % .

(isotactic propylene homopolymer) (melt flow index) (230 °C, 21.6N) DIN 53 735	140	170			
	155	165			
1.0 g/10min	10 g/10min	1.5 g/10min	6.5 g/10min		
(starting polymer)					
2 %	5 %	1 %	10 %		
(molecular weight distribution)					
(weight average molecular weight) (M_w)		(number average molecular weight) (M_n)			
1	15	2	10		
(peroxidic degradation)					
2	6				
(metallocene)					
(isotactic)					
^{13}C - NMR (chain isotacticity index)		(spectroscopy)			
95%		96%			
99%					
0.01 %					
4 %	0.5 %	2.5 %			
0.8 %	1.5 %				
0.10g/m ²	0.30g/m ²	0.1g/m ²	1.0g/m ²		
(area concentration)					
0.7g/m ²					
(platelet - shaped)					
(mica)	(muscovite),	(biotite),	(phlogopite),		
(synthetic mica)가			(v		
(dry grinding process)					
DE 44 41 223					
(stirred ball mill)					
(corundum)					

(air classification)

(color intensity)

(hiding power)

가

(stretching process)

(detachment)

(va

cuole formation)

가

(laser markability)

(balanced ratio)

(optical properties)

가

가

가

3

(sensibility)

(SEM - I

PS)

, CO₂

(image analysis)

4.5μm

5.5μm

ilizer),

(antistatic) / 가 ,

(lubricant)

가

(neutralizer),

(stab

modified), ,
loxanes){
} / -(ethoxylated) /
(polydialkylsiloxanes),
- (C₁ - C₄)(alkali metal alkanesulfonates),
(propoxylated) 가
(polyalkylphenylsiloxanes)(polyether -
(polydiorganosi

5 % ,

0.5 %

3 ,
12 1810 20
(2 -)
가

가

10 20
0.0

0.03%

0.5%

(higher aliphatic acid amides),

(higher aliphatic acid e

sters),

0.01 %

3 % ,

0.02 %

1 %

0.01 %

0.25 %

가

(erucamide)

가 0.02

% 2.0 %

가

5000

1,000,000mm²/s

가

(stabilizing acti

on) . 가 0.05 % 2 % .
 (phenolic stabilizer), /
 0.1 % 0.6 % , 0.15 % 0.3
 % 500g/mol . - 3 - (3,5 - - -
 - 4 -) {pentaerythritol tetrakis - 3 - (3,5 - di - tert - butyl - 4 - hydroxyphenyl)prop
 ionate} 1,3,5 - - 2,4,6 - (3,5 - - - 4 -) {1,3,5 - trimethyl - 2,4,
 6 - tris(3,5 - di - tert - butyl - 4 - hydroxybenzyl)benzene} .

가 0.7 μ m, (absolute particle size)가 10 μ m , (spec
 ific surface area) 40m²/g (dihydrotalcite), /
 가 .
 % .

2 10 - .
 -
 ,
 1 - 1 - ,
 1 - (terpolymer) ,
 ,
 ,
 (blend) ,
 ,
 1 % 10 %, 2.5 % 8 % ,
 - 1 - 2 % 25 %, 4 % 20 %
 ,
 ,
 1 % 10 %, 2 % 6 % , 1 - - 1 - 2 % 20
 %, 4 % 20 % ,
 ,
 - 1 - 0.1 % 7 % , - 1 - 50 % 90 %
 , 1 - 10 % 40 % .
 / 1.5g/10 min 30
 g/10 min, 3g/10 min 15g/10 min . 120 140 .
 5g/10 min 9g/10 min 120 150 .
 230 , 21.6N (DIN 53 735) .

(peroxidically) (degradation factor)

3 15 , 6 10 .

가 , , / 가 , %

(antiblocking agent)가 가 . %

(silicon dioxide), , , ,

가 / , ,

(incompatible) , - (benzoguanamine - formaldehy

de) 0.1 % 0.8 % . 1 μ m 6 μ m , 0.1 % 2 % ,

2 μ m 5 μ m ,

EP - A - 0 236 945 DE - A - 38 01 535 , .

(base layer) . 3 5

(interlayer) , 4 5

/ 가 .

0.1 μ m 0.3 μ m 3 μ m , 0.4 μ m 1.5 μ m ,

-

/ 가 가

0.3 μ m 1.0 μ m 15 μ m , 1.5 μ m 10 μ m .

4 μ m 60 μ m , 5 μ m 50 μ m , 10 μ m 35 μ m .

40% 100% .

(coextrusion)

ion) (flat - film die) (melts) , (solidificat

(orienting)} , (roll) , (stretching) {

ona) (heat - setting) , 가 (cor

2 (biaxial stretching)() . (sequential

stretching) () , 가 ()

2 . (simultaneous stretching) (flat film p

rocess) (blowing process) . 가

가 (take - off roll) .

(chain) . (stretching ratio) , 가 (tenter frame) 4 8 , 5 6 . 가

5 10 , 7 9 .

10 () , 100 160 0.1 (wind - up unit) .

50 가 10 100 , 20 .

가 80 150 , 가 120 170 .

2 (flame) , (intensity) 37mN/m 가 50mN/m , 39mN/m 4 5mN/m .

(5kV 20kV , 5kHz 30kHz) 가

(non - polar polymer matrix) (polar inclusion) .

path) (pulsed raser), CO₂ Nd:YAG (laser - inscribed) 가 (beam) (absorption cross section) 가 (shade) .

21.6N 230 DIN 53 735 .

(slide) . (scanning electron microscope) .

e) , 10mm^2 , (contrast) (shade image)

DSC , , 가 20 /min.

ASTM - D 1003 - 52 .

DIN 67 530 . (optical parameter)
 . ASTM - D 523 - 78 ISO 2813] , (angle of incidence) 60° .
 (electrical quantity) . 가 (dimensionless),

M_w M_n M_w/M_n (gel permeation chromatography)
 DIN 55 672, 1 . THF , - (eluent) .
 가 , (≈ 135).

(dry - ground) (mica) :

2cm (platelet) 가 5mm
 . $5\mu\text{m}$, $15\mu\text{m}$ 가
 , 가
 , 166 , 3.4 g/10 min.
 60 % (, .) 40 %
 (masterbatch)가 .

1

가 가 $30\mu\text{m}$ 5 ,
 . $0.7\mu\text{m}$. $5\mu\text{m}$.

:

166 가 3.4g/10 min 96.74 %,

60 % 1.2 % 40 %

3.00 %, (Armostat) 0.14 %, (erucamide) 0.12 %.

:

166 가 3.4 g/10 min 100 %.

:

3 % 7 % (random) - -

98.8 %, 가 $2\mu\text{m}$ SiO_2 0.2 %.

.

: 260

: 255

: 240

: 20

: : 110

5.5

가 : : 160

가 9

: 150

(convergence): 5%

2

3 1 . , 1 , .

20 μm . 1 .

3

1 2.2 % 가 40% (, 5.6%)

4

1 40% 1.95 %가 1.95 %가 , 0.78 % 0.78

% 1 40%

5

2 2 , 0.6 %

1

1 (moist suspension)

(shear force)

가 $5\mu\text{m}$, $15\mu\text{m}$

1

2

1 TiO_2 ,

()

pH 2.2 , 10% , 32% , 75 가 T

TiCl_4 가 TiCl_4 가 , pH 7 ,

1 110 700

9.3 μm 5 $7\text{J}/\text{cm}^2$ CO_2 0.2 μsec

(bar code)가

[1]

		ASTM 1003 - 52	60 ° DIN 67 530	CO ₂	
E1	++	8	140	+++	1.2 %
E2	+++	5	145	+++	1.2 %
E3	+	12	120	+++	2.2 %
E4	+++	7	140	+++	0.78 %
E5	+++	4	145	++	0.6 %
CE 1	- - - ,	15 20	120 140	+++	
CE 2	- - -	20	140	+++	

E = , CE =

가

가

가 가 , (oriented)

(57)

1.

(oriented)

(polyolefin film)

가

(layered silica

te)

2.

1 , (platelet)

(dry - grinding process)

3.

1 / 2 ,

4.

1 3 ,

5.

1 4 , (mica), , (musco
vite) , (biotite) , (phlogopite) , (vermiculite) ,

6.

1 5 , , .

7.

1 6 , $1\mu\text{m}$ $10\mu\text{m}$, $2\mu\text{m}$ $8\mu\text{m}$, .

8.

1 7 , /
/ , .

9.

1 8 , $0.1\text{g}/\text{m}^2$ $0.7\text{g}/\text{m}^2$, $0.10\text{g}/\text{m}^2$ $0.30\text{g}/\text{m}^2$ $0.1\text{g}/\text{m}^2$ $1.0\text{g}/\text{m}^2$,
 , .

10.

1 9 , $3\mu\text{m}$ $100\mu\text{m}$, $5\mu\text{m}$ $50\mu\text{m}$, .

11.

1 10 , CO_2 Nd:YAG
(excimer laser) .

12.

1 10 (oriented) (packaging) .

13.

1 10 .

14.

1 (stretching ratio) , / 가 , $4:1$ $3:1$ $9:1$
 $10:1$ 가 .