

(19)
(12)

(KR)
(A)

(51) . Int. Cl.⁷	(11)	10-2004-0015299
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(21)	10-2003-7016979		
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(86)	PCT/FR2002/002167	(87)	WO 2003/002572
(86)	2002 06 21	(87)	2003 01 09

(30)	0108460	2001 06 27	(FR)
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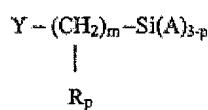
(54)

(I)	(II)	()
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<	>
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R_rB-Ro-Z

<	>
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, 가 , 가

(soiling)

가

90 °

가

가

, US N ° 5 523 161

가

EP 692 463

(sub-layer)

WO 99/18168

UV

, EP 491 251 EP 492 545

가

가

()

() (ring)

가 가

가

가

가

(self - cleaning)

1

(I)

(II)

()

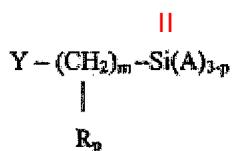
R₁-B-R₂-Z

R_f 1 20 , 6 16
;

B 1 3 , () 2가

Ro B , 1 100 , 5 20

Z , B가 , 1 6



m 0 10, 0 3 ;

R 1 6

$$p \quad 0 \quad 2, \quad 0$$

A , () , 1 6 .

$$Y_{(R_p)(A)} \quad , \quad m_0 \quad , \quad A \quad , \quad Y_m \quad 0 \quad .$$

, (II)
ORAFAC)() 1110D (Du Pont)
aikin) (UNIDYNE) DS 401

, (ZONYL)() FSN 1 (ATOFINA) () FSO 2
 . (I)

(F)
(D)

$$\cdot 2 \quad , \quad \text{CH}_3\text{O}(\text{C}_2\text{H}_4\text{O})_n\text{-C}_2\text{H}_4\text{OH}$$

(II) (SILQUEST) A 1310, (Witco) (/),
(COATOSIL) 1770 -3- (GLYEO) (Huls/ Sivento)

, 10 40 % (I) (II) () , 1 50 %,

, 가

, 0.05 5 %, 0.1 2 %

(a) (I) (II)

, 가 , 가 가

(b) , 가

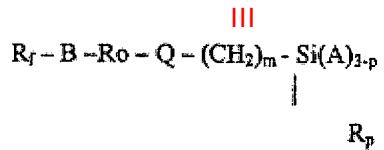
가

(c) , (b)

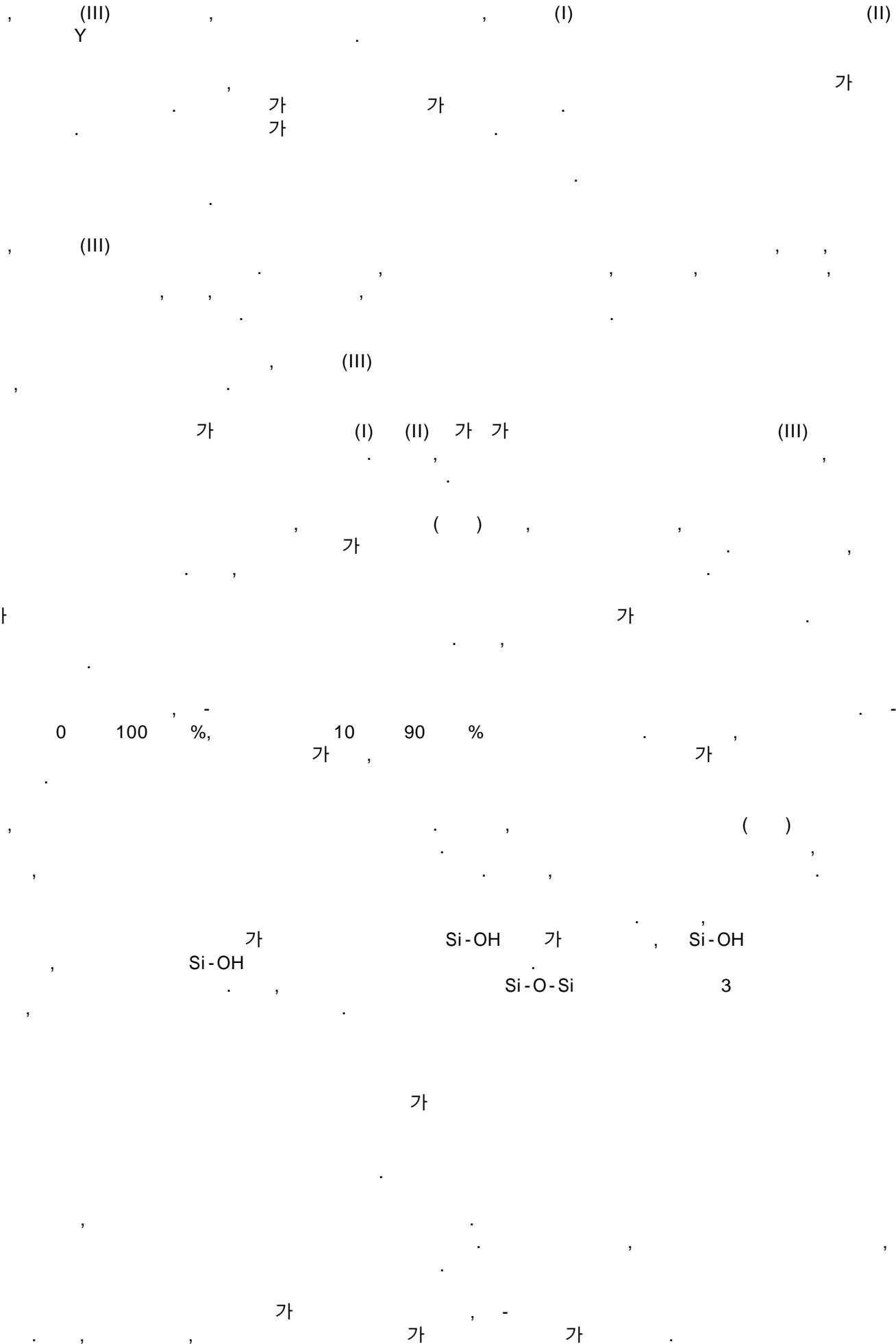
(d) _____

,

(III)



$$, R_f, B, Ro, m, A_p, Q, \dots$$



가 가

0.05 5 %, 0.1 2 %

가

(ii) (i), 50 200, 1 24

가

가

가
가

, 가 가

1

가

가

(anti-reflection)

)

1

$C_6F_{13}C_2H_4O(CH_2-CH_2O)_nH$, n 11 20
 $\frac{1110}{CaCl_2}$ 250 ml
 $BF_3 /$

42 g (0.2)
 $CH_2)_3-N=C=O$ 3-(77)
 $)$, FTIR
 $N=C=O$, 3
 $(OH$, 3
 $(C_2H_5O)_3Si($
 $), 7.9$

40 %

S1

$C_6F_{13}C_2H_4O(CH_2-CH_2O)_n-OC(O)NH-(CH_2)_3-Si(OC_2H_5)_3$ (n 11) 가).

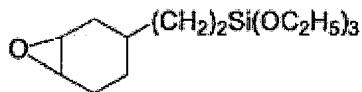
2

$_2O)_nH$, n 11 18
 $i(OC_2H_5)_4$ 가
 $, 55$

$C_6F_{13}C_2H_4O(CH_2-CH$
 $\frac{1110}{(Aldrich)}$ 125 ml
 $S2(40\%)$ 18) S

3

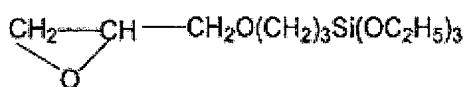
$\text{C}_2\text{O})_n\text{H}(\text{, n}, 55, 1770 \text{ 가})$ 11 가) 25 , $\text{C}_6\text{F}_{13}\text{C}_2\text{H}_4\text{O}(\text{CH}_2\text{-CH}_2\text{O})_{1110-125 \text{ ml}}$ 12



S3(40%))

— 4

$-\text{CH}_2\text{O})_n\text{H}(\text{, n}, 55, \text{ 가})$ 11 가) 25 , $\text{C}_6\text{F}_{13}\text{C}_2\text{H}_4\text{O}(\text{CH}_2\text{-CH}_2\text{O})_{1110-125 \text{ ml}}$ / 11.7
가 .

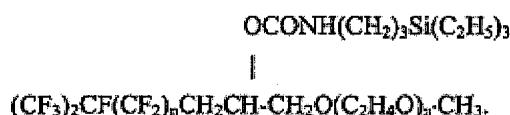


S4(40%))

— 5

$\text{CF}_2)_n\text{CH}_2\text{CHOHCH}_2\text{O}(\text{C}_2\text{H}_4\text{O})_n\text{CH}_3(\text{, 77, 0.2, 3-N=C=O, FTIR, N=C=O, 20, 100 ml, n = 6/8/10, n' = 8, DS 401, 50, (CF}_3)_2\text{CF(OH)}_2\text{, (C}_2\text{H}_5\text{O)}_3\text{Si(CH}_2\text{, 4.6).})$

33 % S5 .



— 1

$\text{C}_8\text{F}_{17}\text{C}_2\text{H}_4\text{SH}$ 19.4 가 5 , 100 ml , CaCl_2
 $\text{3 Si(OCH}_3)_3$ 40 , 0.3 , AIBN 77 , $\text{CH}_2=\text{C}(\text{CH}_3)_5\text{C(O)O}(\text{CH}_2)$
2-() (MEMO)

SC1 39.5 % 가 .

$\text{C}_8\text{F}_{17}\text{C}_2\text{H}_4\text{S-CH}_2\text{-C}(\text{CH}_3)\text{C(O)O}(\text{CH}_2)_3\text{Si(OCH}_3)_3.$

— 2

45 , ICI BRIJ 76(가 100 ml) 3 -N=C=O 3 - (OH) 50 .
 , 77 가 , (C₂H₅O)₃Si(CH₂)₁₇(OC₂H₄)₁₀OH .
)₃-N=C=O 3 - (OH) 50 .
 , FTIR N=C=O , 5 .
)₃-N=C=O 3 - (OH) 50 .
 , FTIR N=C=O , 5 .

55 % SC2

$$\text{CH}_3(\text{CH}_2)_{17}(\text{OC}_2\text{H}_4)_{10}\text{OCONH}-(\text{CH}_2)_3-\text{Si}(\text{OC}_2\text{H}_5)_3.$$

pH 5 S1, S2, S3, S4, S5, SC1 . 0.1 % SC2 / (10/90) .

,
, ,
, KRUSS , ,
1 60 , ,
, , 1
, 0.5 mm/
, ,
, , ()
, 0.1 % ,

1 60

가

가

()

ERMA G1

(~1.5 μ l)

4

AATCC 22-1989

45 °

50 ml

20 cm

가

가

30g/m²

가

1

가

2

71

처리	$\theta (^{\circ})$	$\theta (^{\circ})$	$\theta (^{\circ})$	세척력	
	(°C)	(°C)	(°C)	얼룩	물방울
S1	61	52	59	-	-
SC1	82	73	79	+++	++
SC2	<20	<20	<20	+++	+
S2	61	44	50	-	-
S3	61	46	54	-	-
S4	61	52	56	-	-
S5	n.d.	n.d.	n.d.	-	-
미처리 유리	<20	<20	<20	++	+++

- : 실질적으로 얼룩 또는 방울이 보이지 않음

+ : 얼룩 또는 방울이 약간 보임

++ : 얼룩 또는 방울이 좀더 많이 보임

+++ : 얼룩 또는 방울이 매우 많이 보임

n.d. : 미결정됨

가

(57)

1.

(I)

(II)

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< | >

R_r-B-Ro-Z

(, ,

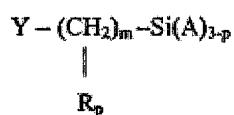
R_f 1 20 ;

B 1 3 , () 2가 ;

Ro B , 1 100 , 5 20 ;

Z , B가 , 1 6)

< || >



(, ,

m 0 10 ;

R 1 6 ;

- p 0 2 ;
A , 1 6 ;
Y (R_p)(A) _{3-p}, m 0 , A) , Y m 0 Si
- 2.**
1 , (I) R_f 6 16 .
- 3.**
1 2 , (I) Ro 5 20 , .
- 4.**
1 3 , (II) m 0 3 .
- 5.**
1 4 , (II) Y ㅏ .
- 6.**
1 5 , (II) A ㅏ , , () .
- 7.**
1 6 , p ㅏ 0 .
- 8.**
1 7 , 1 50 %, 10 40 % (I) (II) .
- 9.**
1 8 , , ㅏ .
- 10.**
1 9 , 0.05 5 %, 0.1 2 % .
- 11.**
1 10 , .
- 12.**
(a) (I) (II)
1 11 .
- 13.**
12 , .
- (b) , ㅏ .
- 14.**
12 13 , .

(c) , ;

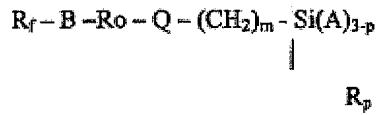
(d)

가

15.

(III)

< III >



, R_f , B, Ro, m, A, p

, Q, , , ,

16.

15 , Q가

17.

(III)

(I)

(II)

Y

18.

(i)

가

1

11

19.

18 ,

(ii) 50 200 , 1 24

(i)

가

20.

18 19 , 가 가

21.

18 20

22.

21 , 가 ,