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(12) (B1)

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(30) 9813806 1998 11 03 (FR)

(73) , F - 75008, 14

(72) 94000 35  
94550 - 12  
91420 79

(74)

:

(54)

, (Hansen) 가 <sup>a</sup><sub>d</sub>, <sup>a</sup><sub>p</sub>, <sup>a</sup><sub>h</sub>  
A " " ,  
:  
- 1) 1 , , 가 <sup>b</sup><sub>d</sub>, <sup>b</sup><sub>p</sub>,  
<sup>b</sup><sub>h</sub> B , , , , A B ,  
, B , A B 가 3 J <sup>1/2</sup> cm<sup>-3/2</sup>  
- 2) 2 , A B .  
, 가 .

/

(free),

가

/

가

가

가 가 .

, ' ' ,

가 , ( , ' ' ), ,

, ' ' ,

가 , ,

가  $a_d, a_p, a_h$  , A " " , (Hansen)  
:

- 1) 1 , B / / , B 가  $b_d, b_p$  A  
B  $b_h$  d(A-B) 가 :

$d(A-B) = 3 J^{1/2} \text{ cm}^{-3/2}$  ,

:

$$d(A-B) = \sqrt{4(\delta_d^a - \delta_d^b)^2 + (\delta_p^a - \delta_p^b)^2 + (\delta_h^a - \delta_h^b)^2}$$

- 2) 2 , A B .

- 1) 1 , B / / , 가  $b_d, b_p$   
 $b_h$  ,

- 2) 2 A B , 가  $a_d, a_p$   
 $a_h$  ,

A B / / , A B  
d(A-B) 가 :

$d(A-B) = 3 J^{1/2} \text{ cm}^{-3/2}$  ,



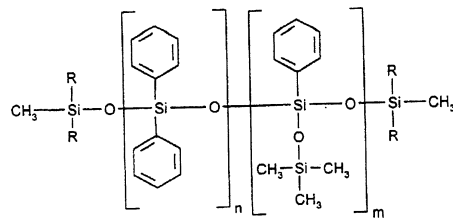
가

A

(C<sub>1</sub> - C<sub>20</sub>)

가

가 0.06 m<sup>2</sup>/s  
(CTFA )



[ R C<sub>1</sub> - C<sub>30</sub>  
100 ]

1 100 ];

, n 0 100

, m 0



[C.M. Hansen, 'The three dimensional solubility parameters', J. Paint Technol., 39, 105 (1967)]  
 ['Handbook of Solubility Parameters', Allan F. Barton, CRC Press, 1991]

- $\delta_d$  A
  - $\delta_p$  A
  - $\delta_h$  A ( )
- A

$$\delta_{dmix} = \sum_i x_i \delta_{di} ; \quad \delta_{pmix} = \sum_i x_i \delta_{pi} \quad \text{및} \quad \delta_{hmix} = \sum_i x_i \delta_{hi}$$

[ ,  $x_i$  (fraction by volume) ,  $\delta_{di}$  ,  $\delta_{pi}$  ,  $\delta_{hi}$  ]

A

A

40 100

- 3 8 , 4 6

- / / Union Carbide Silicone FZ 3109

- 2 9 (1 cSt) PDMS

가 . A / /

0 40 % , 2 20 %

(lake)

s SA PDMS Myoshi PI / Mapreco

(mattness)

0 40 %, 2 20 %

rning)

(microbead) (

Expancel (Nobel Industrie), Polytrap (Dow Co Toshiba Tospearls)

0 40 %, 2 20 %

가

A (free)

1 30 %

1 5 %

1 20 %

A

( )

( )

(助) 가

A

0.3

30 %, 0.5 20 %

A 가

O/W

(CTFA) :

PEG - 40

60,

/

/PEG - 100

PEG - 400,

PEG - 6/PEG - 32/

W/O

- 4

A 가,





$$\delta_{dmix} = \sum_i x_i \delta_{di} \quad ; \quad \delta_{pmix} = \sum_i x_i \delta_{pi} \quad \text{및} \quad \delta_{hmix} = \sum_i x_i \delta_{hi}$$

[ , xi i (fraction by volume) ].

, A a<sub>d</sub>, a<sub>p</sub>, a<sub>h</sub> B  
 , d(A-B) 가 3 J<sup>1/2</sup> cm<sup>-3/2</sup> b<sub>d</sub>, b<sub>p</sub>, b<sub>h</sub> , 5 J<sup>1/2</sup> cm<sup>-3/2</sup> , A B .

, 3 d(A-B) ,  
 :

$$d(A-B) = \sqrt{4(\delta_d^a - \delta_d^b)^2 + (\delta_p^a - \delta_p^b)^2 + (\delta_h^a - \delta_h^b)^2}$$

, d(A-B) 3 J<sup>1/2</sup> cm<sup>-3/2</sup> , d(A-B) 5 J<sup>1/2</sup> cm<sup>-3/2</sup> .

B . A

( B ) 가 , /

B , A .

O/W , (CTFA) : , PEG - 40 ,  
 , 60, / ,  
 /PEG - 100 , PEG - 400, PEG - 6/PEG - 32/  
 . W/O , - 4 / / .

B , , - 10 ,  
 , 0 5 % .

가 , PEG - 50 .

B 가 , , .

cas B 가 , B , (floral water) / Vittel, Lu  
 La Roche Posay / .

B , , , 가 , , 가 .



- 10 %
- 3.4 %
- 0.1 %
- 6 %
- 67 %
- 5 %
- /PEG - 100 2.4 %
- 60 1 %
- 0.6 %
- 0.9 %
- PEG - 2 1.1 %
- / / 2.2 %
- q.s. 100 %

O/W

), ( C<sub>26</sub> C<sub>24</sub> , PEG - 2 ( 30/70 ), PE  
 G - 100 ( 60 )

-  $d \cong 16.3 \text{ J}^{1/2} \text{ cm}^{-3/2}$

-  $p \cong 1.0 \text{ J}^{1/2} \text{ cm}^{-3/2}$

-  $h \cong 4.0 \text{ J}^{1/2} \text{ cm}^{-3/2}$

A

A1:

- 8 %

- ( ) 5 %

- 87 %

A1

, :

-  $d = 17.2 \text{ J}^{1/2} \text{ cm}^{-3/2}$

-  $p = 16.7 \text{ J}^{1/2} \text{ cm}^{-3/2}$

-  $h = 3.0 \text{ J}^{1/2} \text{ cm}^{-3/2}$

,  $d(A1 - B) : d(A1 - B) = 15.83 \text{ J}^{1/2} \text{ cm}^{-3/2}$  .

B

A1

A2:

- , 8 %

- ( ) 5 %

- 87 %

A2

, :

-  $d \cong 17 \text{ J}^{1/2} \text{ cm}^{-3/2}$

-  $p \cong 1.6 \text{ J}^{1/2} \text{ cm}^{-3/2}$

-  $h \cong 2.4 \text{ J}^{1/2} \text{ cm}^{-3/2}$

,  $d(A2 - B) : d(A2 - B) = 1.85 \text{ J}^{1/2} \text{ cm}^{-3/2}$  .

B A2

A2

A3:

- N - - 2 - 8 %

- ( ) 5 %

- 87 %

$$d(A3 - B) : d(A3 - B) = 6.16 \text{ J}^{1/2} \text{ cm}^{-3/2}$$

B

A3

(57)

1.

(Hansen)

가  $a_d, a_p, a_h$  A "

- 1) 1

가  $b_d, b_p, b_h$

B

A B

$d(A - B)$  가

$$d(A - B) = 3 \text{ J}^{1/2} \text{ cm}^{-3/2}$$

$$d(A-B) = \sqrt{4(\delta_d^a - \delta_d^b)^2 + (\delta_p^a - \delta_p^b)^2 + (\delta_h^a - \delta_h^b)^2}$$

- 2) 2

A B

2.

3.

$$1, d(A - B) = 5 \text{ J}^{1/2} \text{ cm}^{-3/2}$$

4.

1, A, 2-, 2-  
N- -2-









$$d(A-B) = \sqrt{4(\delta_d^a - \delta_d^b)^2 + (\delta_p^a - \delta_p^b)^2 + (\delta_h^a - \delta_h^b)^2}$$

[ , <sup>a</sup><sub>d</sub>, <sup>a</sup><sub>p</sub>, <sup>a</sup><sub>h</sub> A ] .

29.

27 A , 28 B .

30.

1 , 1 , 27 A <sup>28</sup> 2

31.

5 A 5 50 %

32.

19 B 10 60 %