

1.

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(PCE)

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, PCE

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, 가

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(Environmental Protection Agency ; EPA)

. 1992 EPA PCE

가

. 가 ,

, ‘가

, . 1996 1998

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가 .

AATCC

, ISO .

2.

가

, 가 .
1999 가 Wilmington, N.C

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, 가

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. EPA North Carolina State
University(NCSU) Texas Woman's University .

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3.1

3.1

, Autoclave

Engineer . ,

가 /

. 가가 가 ,

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(#111,), (, #100),
 (#603), (, #266), (56T, #750),
 (, #541) .

(, ,)

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 C.I. < 1> .

< 1> 1

C.I.

Red 167	Red 17	Red 151, 315	Red 180
Yellow 54	Yellow 3	Yellow 79, 110	Yellow 160
Blue 73	Blue 102	Blue 225	Blue 89

3.2

NCSU . 1% o.w.f. .

Werner Mathis jig

, jig 11 .

Werner Mathis JFO jet

. Ahiba Texomat .

.

AATCC Test Method 8-1996 (/)

가 . 5 .

MacBeth ColorEye Spectrophotometer

H36282 , C
 2 ° , 8
 4
 ΔE
 ΔE_{cmc}* 1 1.5
 3가 1
 2(A) 3(B) 5%(vol/vol) 가
 6 × 6 3
 1 ℓ
 (20) 860psi , 30rpm

4.2

4.1

2 6 ,
 1
 10 , 0.5% o.w.f.
 C.I. (/) < 2>
 가
 60 4 × 4 2 × 4

(multifiber test fabric No. 10A)

DataColor International

Spectroflash SF 300

D₆₅

10 °

ΔE

ΔE

9

AATCC

(D₆₅)

가

3g

3

1 ℓ

가

860 psi

20

< 2>

No.				No.			
()				()			
1	C.I. Disperse Yellow 34	5.0	5.0	31	C.I. Reactive Red 180	5.0	5.0
2	C.I. Disperse Yellow 3	5.0	5.0	32	C.I. Reactive Red 198	5.0	5.0
3	C.I. Disperse Blue 102	5.0	5.0	33	C.I. Reactive Orange 107	5.0	5.0
4	C.I. Disperse Blue 3	4.5	5.0	34	C.I. Reactive Blue 89	5.0	5.0
5	C.I. Disperse Red 17	4.5	4.5	35	C.I. Reactive Black 5	5.0	5.0
6	C.I. Disperse Blue 102	5.0	5.0	36	C.I. Reactive Blue 38	5.0	5.0
7	C.I. Disperse Blue 7	5.0	5.0	37	C.I. Reactive Yellow 37	5.0	5.0
8	Navy EL-R	4.5	5.0	38	C.I. Reactive Orange 16	5.0	5.0
9	C.I. Disperse Yellow 3	5.0	5.0	39	C.I. Reactive Violet 5	5.0	5.0
10	C.I. Disperse Orange 68	5.0	5.0	40	C.I. Reactive Blue 77	5.0	5.0
()				()			
11	C.I. Disperse Yellow 3	5.0	5.0	41	C.I. Disperse Yellow 54	5.0	5.0
12	C.I. Disperse Blue 7	5.0	5.0	42	C.I. Disperse Red 167	4.5	4.5
13	C.I. Disperse Blue 3	5.0	5.0	43	C.I. Disperse Blue 73	5.0	5.0
14	C.I. Disperse Blue 102	4.0	5.0	44	C.I. Disperse Yellow 42	5.0	5.0
15	Navy EL-R	5.0	4.5	45	C.I. Disperse Yellow 108	5.0	5.0
16	C.I. Disperse Orange 68	5.0	5.0	46	C.I. Disperse Red 86	5.0	5.0
17	C.I. Disperse Yellow 3	5.0	5.0	47	C.I. Disperse Red 324	5.0	5.0
18	C.I. Disperse Red 17	4.5	4.5	48	Red W-BF 200	5.0	5.0
19	C.I. Disperse Blue 102	5.0	5.0	49	C.I. Disperse Blue 27	5.0	5.0
20	C.I. Disperse Red 1	5.0	4.5	50	C.I. Disperse Blue 60	5.0	5.0

()				()			
21	Yellow 4GN	5.0	5.0	51	Yellow 4GN	5.0	5.0
22	Red G	5.0	5.0	52	Red G	5.0	5.0
23	Blue 2R	5.0	5.0	53	Blue 2R	4.5	5.0
24	Green B	5.0	5.0	54	Green B	5.0	5.0
25	Violet B	5.0	5.0	55	Violet B	5.0	5.0
26	Bordeaux B	5.0	4.5	56	Bordeaux B	5.0	5.0
27	Black	5.0	5.0	57	Black	4.5	5.0
28	Yellow 2R	5.0	5.0	58	Yellow 2R	5.0	5.0
29	Red NYL	5.0	5.0	59	Red NYL	5.0	5.0
30	Brown G-01	5.0	5.0	60	Brown G-01	5.0	5.0

4.2

10kg German carbon dioxide research consortium , .

가 (1-E 2-E) ,

2 .

1-E 6kg 810psi 20 , 2-E

711psi . 10rpm

, 1-E 1000 ℓ /hr , 2-E 1300 ℓ /hr

.

60 .

. ΔE 2

6 .

4.3

Morrisville Hangers Cleaners

MICO₂ .

10

25 × 16

50lbs

725 740psi

675psi

4%(v/v)

가

, 70gal/min

42

, ΔE

6

5.

, CO₂ 가 ,

.

가

가 600 900 psi

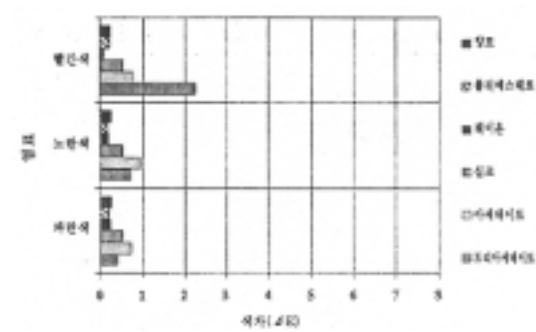
(貧溶媒, poor solvent)

가

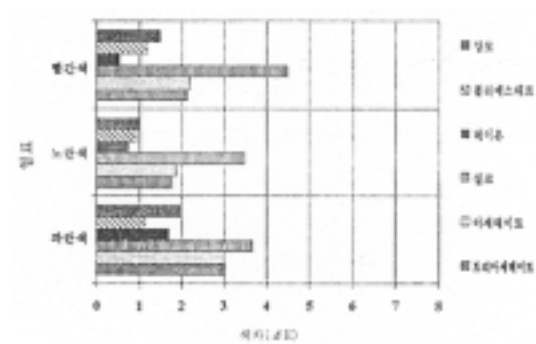
가

5.1 1

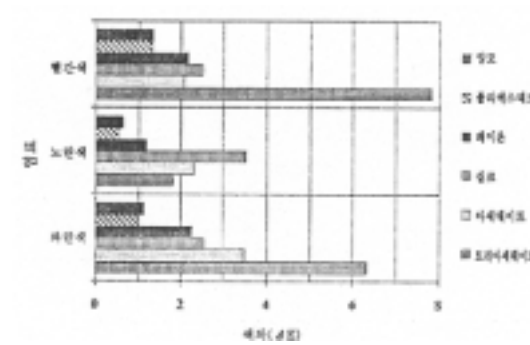
1 2
가 3 6 ,
. < 1 3> 3



< 1>



< 2> A 가



< 3> B 가

< 1>

가

($\Delta E=2.25$)

. < 2, 3>

. A

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. B

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가

가

(optical property)

가

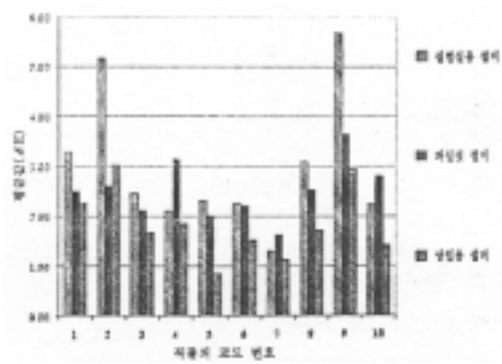
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가

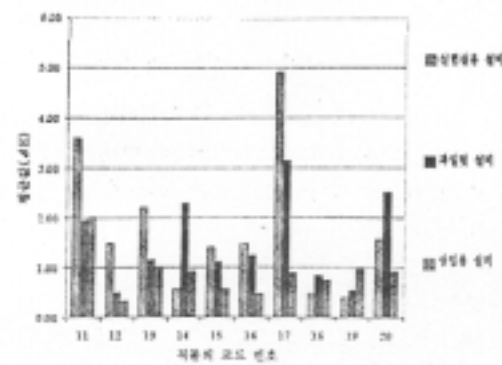
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	2	.
5.2.2		
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(organic siloxane)	.	
PCE		
	AATCC	ISO
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1	6	10
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	. < 4 9>	.
ΔE	.	



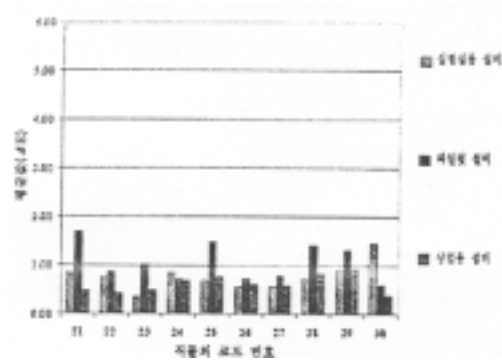
< 4>

(ΔE)



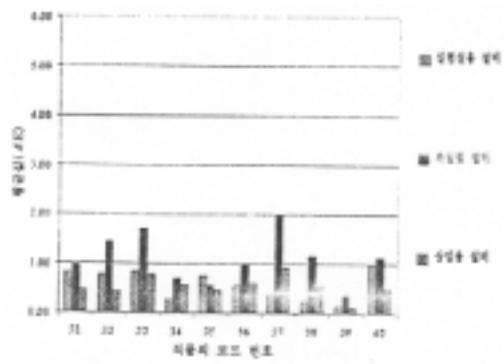
< 5>

(ΔE)



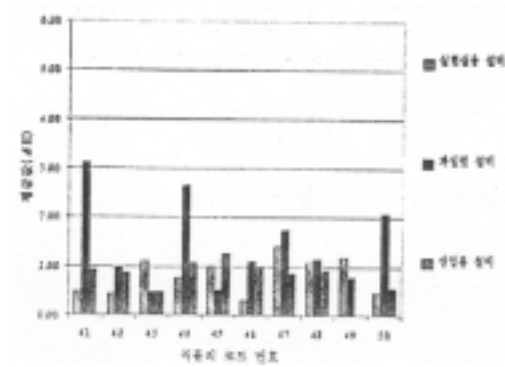
< 6>

(ΔE)



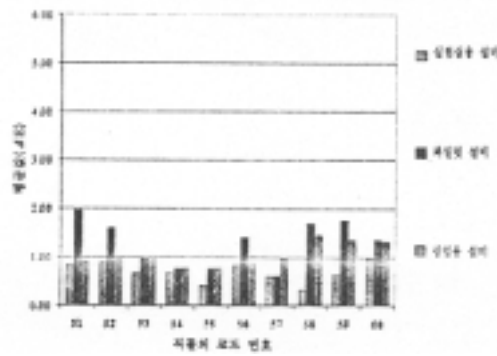
< 7>

(ΔE)



< 8>

(ΔE)



< 9>

(ΔE)

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(Tg)가

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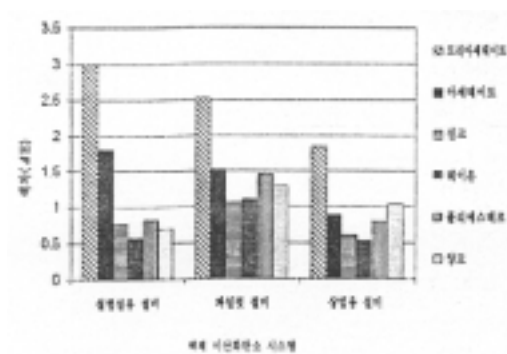
가

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ΔE

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