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(71) 101

(72) , 14206, , 101
 , 14085, , 5983
 , 14228, , 136
 , 14226, , 18
 , 14051, , 6202

(74) :

(54) , ,

1,1,1,2- , 1,1,1,3,3- -245fa, 2-
, , , , ,

1,1,1,2- , 1,1,1,3,3- -245fa,

(blowing agent),

('HFC's')

('CFC's') (fractionate) ('HCFCs') (non - fractionating)

CFCs HCFCs

1 1,1,1,2- , 1,1,1,3,3- , 2-

CFCs HCFCs 1,1,1,2- ('HFC- 134a'), 1,1,1,3,3- ('HF

C-245fa'), 2-

CFC's HCFC's 1,1,1,2- , 1,1,1,3,3-

(0) , 2- CFC HCFC

(azeotropic) (azeotrope - like)'

가 1 (cut) 가가

(azeotropic-like) (fractionate) 1

(azeotrope-like)' (constant boiling)'

, A B / 가

1,1,1,2- , 1,1,1,3,3- , 2- 1,1,1,2- (effective amount)

, 1,1,1,3,3- , 2- 1-50 , HFC-134a 10-97 , HFC-245fa 1-50 , 2- 1-50

14.61psia -25.80 ± 4 , ± 2 , ± 1

가 1 1

[1]

	(%)	(%)	가 (%)
HFC-134a	10-97	40-97	70-97
HFC-245fa	1-50	1-25	1-10
2-	1-50	1-25	1-10
	1-50	1-25	1-10

CFCs HCFCs (blowing agent),

(cellular) 가

(closed cell foam)

'Polyurethanes Chemistry and Technology,' Volumes , Saunders and Frisch, 1962, John Wiley and Sons, New York, NY

가

가 , 'A'

1 'B' 2 (blocks), (slabs), (pour-in-plac A
(froths)

3 가

B- 가

가

HFC-134a HFC-134a

가, (HFC-152); (HFC-143); (HFC-134); (HFC-32);
(HFC-245); (HFC-236); (HFC-227); (HFC-125);
HFC-365) 가 (0)
가

(cell stabilizer) 가 ,
가 U.S. DC-193, B-8404 L-5340
2,834,748, 2,917,480, 2,846,458
(2-) (2,3-) (1,3- (2-
))

가

가

가 (deodorants), (cleansers) (pol
(cosmetic materials) (anti-asthma) (anti-halitosi
ishing agents)
s)

, 1,1,1,2- , 1,1,1,2-
, HFC-245fa, 2- HFC-13
4a HFC-134a, HFC-245fa, 2-
, HFC-134a/HFC-245fa/2- / HFC-134a (bulk
amount) , HFC-134a
1,1,1,2- /HFC-245fa/2- /
HFC-134a HFC-134a/HFC-245fa/2- /
가

가

가

가

가 가

가

1

가 (jacketed) (ebulliometer)가 20g HFC-13
 4a , HFC-245fa 가 , 2-
 가 가 , 가 가 HFC-134a HFC-245fa, 2-
 가 가 , 4 0.1 9-10 % 0.
 1 30 % HFC-245fa, 1 20 % 2- 1
 2 4
 /

[2]

(134a/245fa 혼합물 92.9:7.1) 중량 %	2- 메틸부탄 중량 %	물 중량 %	T(°C)@14.61psia
97.89	2.11	0.00	-25.78
97.50	2.10	0.40	-25.78
97.12	2.09	0.79	-25.78
95.60	2.06	2.34	-25.78
94.12	2.03	3.85	-25.78
92.70	2.00	5.30	-25.78
91.32	1.97	6.71	-25.78
89.97	1.94	8.09	-25.78
88.67	1.91	9.42	-25.78
87.41	1.88	10.71	-25.78

1 2

2

(saccharose), 가 (hyd
 roxyl value) 380 100g 2g,
 3g 100g HFC-134a, HFC-245fa, 15g
 4,4'- 152g (rig
 id)

3

#1 (handmixing)

lycat 8 3 , Terate 2541, , Tegostab B8433 , Dabco K-15 Po
 1500rpm Conn 2' 2kg 1 (gallon) (can)
 1- ITC 32
 32 oz. A- 70

[3]

(pbw)	#1
Terate 2541 ¹	100.00
Tegostab B8433 ²	2.00
Polycat 8 ³	0.25
Dabco K-13 ³	2.80
HFC-245fa/HFC-134a/ /	38.00
Lupranate M70L ⁴	150.10
	250

¹ COSA ; =240

² GoldschmidtChemical Company

³ Air Products amp; Chemicals Inc.

⁴ () 40 % 2 (functionality) ((equivalent weight) = 134; BASF Corp. .

Conn 2' ITC , 32 B- 32 32 oz. 1000rpm 가 .

2 가 . 가 30 .

32 , 10 B- 가 , 3000rpm Conn 2' ITC A- , (cream), (in

10 8'x8'x4' ,

initiation),

24 . , ,

2.0±0.1 lb/ft ³ .

18 . , k- (factor) ASTM C5

가

1,1,1,2- , 1,1,1,3,3- -245fa, 2- , , , ,

(57)

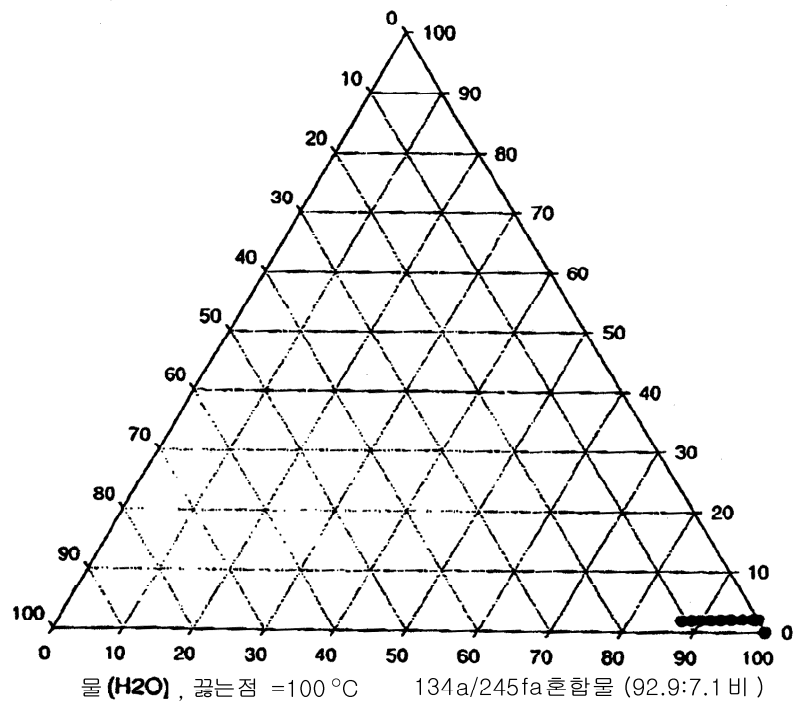
1. 1-50 % , 2- 1-50 %, HFC-245fa 1-50 % 1,1,1,2- 97- 10 % , 14.61psia -25.80 ±4 .

1	2.							
		, 97-40	1-25 %	%, 2-	1-25	%, HFC-245fa	1-25	% 1,1,1,2-
						.		
1	3.							
		, 97-70	1-10 %	%, 2-	1-10	%, HFC-245fa	1-10	% 1,1,1,2-
						.		
	4.							
1						.		
	5.							
2						.		
	6.							
3						.		
	7.							
1								
	8.							
2								
	9.							
3								
	10.							
1								
	11.							
2								
	12.							
3								
	13.							
		1						
	14.							
		2						
	15.							
		3						
	16.							
			1				가	.

17.
16 , 가 가 .
18.
17 , 가 (cosmetic material) 가 .
19.
17 , (medicinal material) .
20.
1,1,1,2- , HFC-245fa, 2- 1,1,1,2-
1,1,1,2- , HFC-245fa, 2-
1,1,1,2- , HFC-245fa, 2-
1,1,1,2- .
21.
20 , 1,1,1,2- , H
FC-245fa, 2- .
22.
4 가 (cell gas) .
23.
5 가 .
24.
6 가 .

1

끓는점의 3 원 상태도
2- 메틸부탄, 끓는점 =27.9°C



● 표시된 선에서 끓는점은 -27.8 C ~ -27.7°C 이다 .