

·

EPS가

,

·

,

Fiber Board,
가

Polystyrene
,

EPS
가 가
가

,

가 가

,

·

가

,

가

,

,

,

,

,

·

,

가

·

,

가

,

·

·

1.

가 ,

가 .

9 ('97.9.15~17) .1 .2

.1 CFC-11

1986		1995~1997	
	1989.7.1		1999.7.1
75%	1994.1.1	50%	2005.1.1
100%	1996.1.1	85%	2007.1.1
	15%	100%	2010.1.1

.2 HCFC-141b

1989		2015 HCFC	
	HCFC +1989 CFC 2.8%		2016.11
	1996.1.1		2005.1.1
35%	2004.1.1	50%	
85%	2010.1.1		
90%	2015.1.1		
99.5%	2020.1.1		
	A/S		
100%	2030.1.1	100%	2040.1.1

, CFC-11
HCFC-141b

3

Pentane

가

n-Pentane

가

3.

	CFC-11	HCFC-141b	HFC-245fa	C-PENTANE	n-PENTANE
Structure	CCl ₃ F	CCl ₂ FCH ₃	CF ₃ CH ₂ CHF ₂	C ₅ H ₁₀	C ₅ H ₁₂
M.wt	137	117	134	70	72
B.P,	23.8	32.1	15.3	49.3	36
Liqide density, g/cc at 20	1.49	1.24	1.32	0.75	0.63
Vapor Pressure at 20	890hpa	695hpa	1267hpa	340hpa	570hpa
ODP	1	0.11	0	0	0
GWP	1	0.12	0.24	<0.001	<0.001
Flash point,	None	None	None	-31	-50
Vapor Thermal conductivity	0.007	0.009	0.011	0.011	0.013
Life time,years	60	8	12.4	few days	few days
S u r f a c e Tension dynes/cm	18.8	19.3	--	21	16.3

, Pentane

가

- Pentane

-

- 가

- Unit Double Plate Conveyor 가

- Area

n-Pentane , Life Time HFC-141b 가
 , 가 HCFC-141b .
 n-PENTANE 3% .
 가 HCFC-141b .

2.

HFC-245fa HCFC-141b 가 .
 HFC-245fa HFC-245fa가 (VOC,
) Life Time
 (GWP), (ODP)
 HFC-245fa 가 .
 가 가 .
 가 가 .
 HFC-245fa Neoprene, EPDM
 ,Teflon,Nylon Fluorocarbon, Elastomer,Nitrile
 HFC-245fa 가 .
 HIPS,ABS
 .4 .5 HFC-245fa
 Chemical attack .

.4 HIPS compatibility

	Weigth ,%	Length ,%	Width ,%	Thickness ,%
1	0.19	-0.06	0.15	0.41
2	0.08	-0.05	0.58	0.32
3	0.21	0.03	0.91	0.00
4	0.17	0.12	0.25	-0.26

.5 ABS compatibility

	Weigth ,%	Length ,%	Width ,%	Thickness ,%
1	0.10	0.09	0.15	0.13
2	0.21	0.09	0.74	-1.67
3	0.16	0.05	0.74	0.00
4	0.27	-0.05	1.14	0.00

Polyol 가 Polyether Polyol
 HFC-245fa n-Pentane/Cyclopentane

- Aromatic amine : 55 ~ 60
- Sucrose : 60
- Aromatic polyester : 23 ~ 35

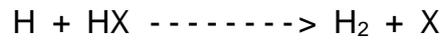
HFC-245fa foam

foam cell 가 가 ,

HFC-245fa , HCFC-141b
 , HFC-245fa가

6. foam

	HCFC-141b	HFC-245fa
,% -30		
24hrs	-1.8	-0.17
7days	-3.6	-2.30
,kcal/mhr		
24hrs	0.0176	0.0176
7days	0.0202	0.0189
30days	0.0222	0.0205
Cell	fine	fine



가

가

Free-radical

n-PENTANE

HFC-245fa

가

가

HCFC-141b

n-Pentane

n-PENTANE

7

7. Polyurethane

	KS	CFC-11	HCFC-141b	n-PENTANE M-200
,Kcal/mhr	0.021	0.0150	0.0155	0.0185
.Kg/cm ²	2.5	4.52	4.98	4.12
,Kg/cm ²	2.0	2.43	2.50	2.31
,g/100cm ²	3.0	1.51	1.75	2.10
	120 60mm	PASS	PASS	PASS