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R&D

· 가

...

가  
가  
가

가  
5  
5

5  
가  
가

가  
가  
가 Specialty

가  
가  
가

92  
80  
338 5000  
LDPE 93 5000 (LLDPE 30 ), HDPE 111 3000 ,PP 148 2000  
, PVC 82 , PS 99 7000 , ABS 45 5000 580 2000 ( ),  
188 , 32 5000

5  
가  
가  
89~95 3~4% 가

11.2%, 16.4%, 89~93 62.3%  
 가 3.7%, 가 89 92.8% 90 89.2% ,  
 95 81.3% 91 94% 95 88% , 91 92%  
 95 80%, 96 74%

< 1>

( :1000 , %)

	1989	1990	1995	2000	가	
					'89 ~ '95	'95 ~ 2000
	17,480	18,270	22,030	22,670	3.9	0.6
	1,640	1,720	2,365	2,630	6.3	2.1
	15,678	16,075	20,275	20,525	4.3	0.2
	7,450	7,845	9,130	11,115	3.4	4.0
	3,357	3,617	4,812	6,179	6.2	5.1
	780	810	1,245	1,245	8.1	0.0
	2,530	2,835	4,785	5,335	11.2	2.2
	4,450	5,705	11,095	15,315	16.4	6.6
	5,309	5,604	7,111	7,561	5.0	1.2
	58,674	62,481	82,848	92,575	5.9	2.2
	54,469	55,767	67,346	79,245	3.6	3.3
	54,264	56,470	67,346	79,261	3.7	3.3
가	92.8	89.2	81.3	85.6		

:TECNON

< 2>

( :1000 , %)

		1990	1991	1992	1993	1994	1995	1996	1997
가		5,900	6,300	6,500	6,800	7,200	7,300	7,700	8,200
		2,200	2,200	2,400	2,400	2,600	3,000	3,300	3,600
		921	845	841	845	955	1,015	1,315	1,465
		420	440	440	480	480	480	680	880
		315	315	315	315	315	720	720	720
				100	230	390	550	550	
						450	450	450	
		1,150	1,710	2,845	3,380	3,380	3,380	3,380	3,380
		10,906	11,810	13,345	14,320	15,160	16,735	18,095	19,245
		10.5	14.5	21.3	23.6	22.3	20.2	18.7	17.6
		2,590	3,217	2,700	2,500	3,000	2,800	2,800	2,500
		12,474	14,272	14,796	15,625	16,500	17,453	18,461	19,527
가		98	97	92	91	88	90	88	86
		93	92	94	96	86	80	74	88
		91	94	91	92	89	88	87	88

:ACMRA

60 ~ 100%, 30 ~ 50%  
 가  
 , NCC 1 가 5000  
 가  
 , 95 6 5497 , 6 5509 12

99% 가 가  
 , 90 (?) 가 ,  
 , ( ) 20~ 50%

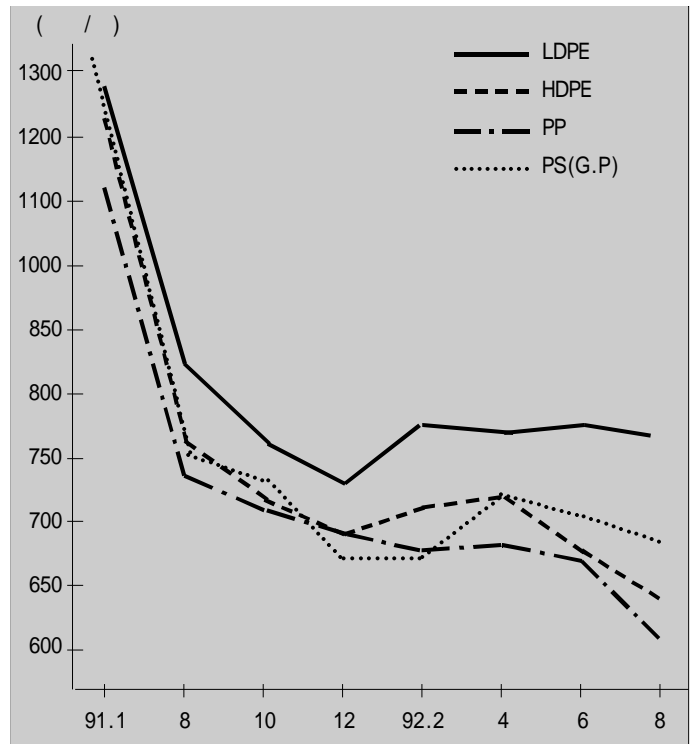
< 3>

( :1000 , %)

	1989	1990	1991	1992	1993	가	
	155	455	555	555	555		555
	350	600	700	700	700		700
			160	350	350	91.8	385
			180	350	350	91.7	385
			80	350	350	91.10	350
			60	250	250	91.10	275
				120	350	92.6	385
				30	350	92.12	350
	505	1,055	1,735	2,705	3,255		3,385
가		108.9	64.5	55.9	20.3		25.1

< >

가



170~200%

가

88 「

가

가

가

가

가

가

R&D

90 2475 ( 193 ) 1176 가  
 가 406 439  
 2000 3749 4.3% 가  
 7.6%, 6.1%, 4.7%, 4.4%  
 7 90 5 9165 94 8 9265 , 2000 15 9004  
 10.5%  
 19.5%, 10.4%, 10.3% 가  
 2000 24 2569 11.0% , 8%  
 ( ) 85% , 가 가  
 가 가

< 4> ( :1000bbl, %)

	1990		1991	1992			1991	1992	
	280		150(-55)	375			585	30	
380		380	380	30	1992	17,287	23,027	33.2	
60	100	160	325	30	1992	11,320	11,985	5.9	
60	100	160	275	30	1993	1,021	5,659	454.3	
60	100('93)	60	110	34	1989	4,570	5,150	12.7	
840	395	1,135	1,675	154		53,180	69,577	30.8	

< 5> ( : )

	1987	1990	1994	2000	가 (%)	
					'87-'94	'87-2000
	1,016.4	1,176.6	1,430.2	1,846.6	5.0	4.7
	170.7	189.6	219.3	326.6	3.7	3.4
	51.3	52.9	55.6	58.4	1.2	3.0
	371.0	406.6	456.0	545.0	3.0	3.0
	387.0	439.0	534.0	676.0	4.7	4.4
	64.9	83.0	112.0	169.0	8.1	7.6
	84.3	91.3	103.1	127.0	2.9	3.2
	30.0	37.0	48.0	65.0	6.9	6.1
	2,174.9	2,475.4	2,958.2	3,749.6	4.5	4.3

가 가 가  
 가 가 가

가

< 6>

( : , %)

		1987	1990	1994	2000	가
		47,328	66,492	100,939	178,816	10.8
		14,909	19,109	33,126	63,753	11.8
		62,237	85,601	134,065	242,569	11.0
		58,643	81,289	121,192	211,207	10.4
		3,594	4,312	12,873	31,362	18.1
		80.7	81.8	83.3	84.7	
		21,701	29,649	44,313	79,474	10.5
		3,980	4,907	7,143	10,664	7.9
		4,640	5,182	8,238	16,758	10.4
		5,452	6,559	9,671	17,498	9.4
		6,017	10,194	16,103	26,312	12.0
		1,625	1,900	2,500	5,800	10.3
		247	774	1,297	2,498	19.5
		43,662	59,165	89,265	159,004	10.5

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가 R&D 가 R&D 가  
 1.1% R&D , 89 1.9% 1.2%,  
 4.6% · 3.9% 5.4% · 4.5%  
 89 27 1467 4.8% 1 3139 R&D  
 13 4963 5520  
 4~10% R&D

< 7>

( )

( : %)

가	1986	1987	1988	1989
	1.0	1.1	1.1	1.2
	NA	1.4	1.2	NA
	1.6	1.8	1.9	2.0
	3.6	3.8	3.9	4.1
	4.3	4.5	4.6	4.8
	3.0	3.1	3.2	3.3
	4.6	NA	4.5	NA
	5.1	NA	5.4	NA

< 8>

(1989 )

( : , %)

	82,338	14.1	100.0	2.70
	77,062	14.1	93.6	3.29
	13,139	10.4	16.0	4.84
	5,520	10.1	6.7	4.09
	1,345	15.6	1.6	3.93
	4,560	9.6	5.5	7.50
	1,714	9.7	2.1	4.11

(Specialty)  
 Sandoz 9.8% R&D

Bayer 6.6%, Rhone-Poulenc 6.7%, Ciba-Geigy 10.4%,

86 Hoechst가 5.6%, Ciba-Geigy가 10.6%

R&D

3.0%(89 ), 2.5%(92 )

< 9> (1990 ) ( :100 , %)

				R&D	R&D
BASF( )	31,195	741	2,983	1,384	4.4
Hoechst( )	30,017	1,135	2,274	1,798	6.0
Bayer( )	27,863	1,259	2,467	1,832	6.6
ICI( )	24,909	1,293	1,955	1,310	5.3
Rhone-Poulenc( )	15,483	216	1,481	1,039	6.7
Ciba-Geigy( )	15,459	810	1,615	1,609	10.4
Elf Aquitainebe( )	14,323	NA	1,361	225	1.6
Enichem( )	13,363	-56.7	1,627	343	2.6
R.D. Shell( ))	12,703	1,002	1,251	349	2.7
Atochem( )	10,297	NA	NA	226	2.2
Akzo( )	10,229	393	670	528	5.2
Sandoz( )	9,703	759	996	948	9.8
Solvay( )	8,265	516	1,182	416	5.0
Roche( )	7,585	744	712	1,133	14.9
Huls( )	6,829	65	745	264	3.9
DSM( )	6,028	509	777	252	4.2

R&D R&D

0.3~1.0%

KIST( )가 36%,

56% 31%, 27%

가 R&D 가 33%, 41%

가 R&D 가

가 R&D 가

가 R&D 가

DOWN 가 UP

가 R&D

2~3%

가 「 」 「 」

「 」 가 , 가 .

< 10> R&D ( ) ( :100 , 100 , %)

			R&D	R&D	
	Hoechst	17,506	985	5.6	1986
	Ciba Geigy	8,869	904	10.6	1986
	Bayer	18,765	955	5.1	1986
	Sandoz	4,648	415	8.9	1986
		2,000,000	50,000	2.5	1992
		246,300	7,300	3.0	1989
		60,000	1,900	3.2	1989

< 11> 가 (KIST) ( :%)

가	1976	1979	1982	1985	1988	
	381	407	439	501	543	2.8
	233	246	278	315	349	3.2
	210	229	240	262	280	2.2
	185	190	207	214	228	1.6
	147	152	161	171	179	1.5
	209	219	213	213	216	0.3
	136	139	148	156	163	1.4
	100	108	128	156	194	5.2
	400	419	429	451	495	1.6
	285	299	389	452	531	4.9
	279	322	327	341	394	2.7
	245	271	278	284	318	2.0
	251	263	270	272	335	2.2
	212	230	230	236	267	1.8
	209	229	238	245	266	1.9
	100	109	116	129	152	3.3
	405	426	451	494	535	2.2
	259	273	330	379	433	4.0
	243	273	282	300	334	2.5
	213	227	240	247	271	1.9
	194	202	211	217	250	2.0
	214	229	224	227	242	1.0
	168	179	188	195	209	1.7
	100	109	124	147	179	4.6

) 1976 100

< 1992/9/15>