

90

350

가

가

가

FCC(Fluid Catalyst Cracker)

() (: 1000 , %)									
1980			1990				1993		
8	2,296	15.1	63	25.9	13,810	19.0	24,858	20.0	
28	10,566	69.7	101	41.6	24,706	34.0	44,471	35.8	
—	—	—	24	9.9	23,989	33.0	43,180	34.8	
—	—	—	7	2.9	4,613	6.4	5,074	4.1	
9	2,299	15.2	48	19.8	5,509	7.6	6,611	5.3	
45	15,161	100.0	243	100.0	72,627	100.0	124,194	100.0	

/ 가 80% , 10%, 20% 가
(90 . 93)

() (: 1000 , %)					
		1980		1990	
Polymerization		5,685	37.5	27,308	37.6
Hydrogenation		2,018	13.3	6,023	8.3
Reforming		1,361	9.0	5,386	7.4
Isomerization		—	—	5,046	6.9
Dehydrogenation		—	—	4,396	6.1
Hydrotreating		—	—	3,937	5.4
Oxidation		2,933	19.3	3,733	5.1
Cl Process		—	—	3,563	4.9
O x y -		—	—	2,976	4.1
chlorination		—	—	1,786	2.5
Purification		—	—	1,094	1.5
Alkylation		3,163	20.9	7,380	10.2
		15,160	100.0	72,628	100.0

) 90 , 93 . 1

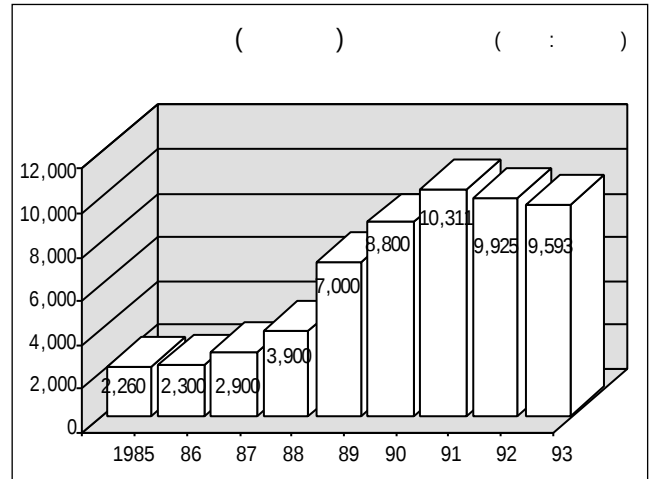
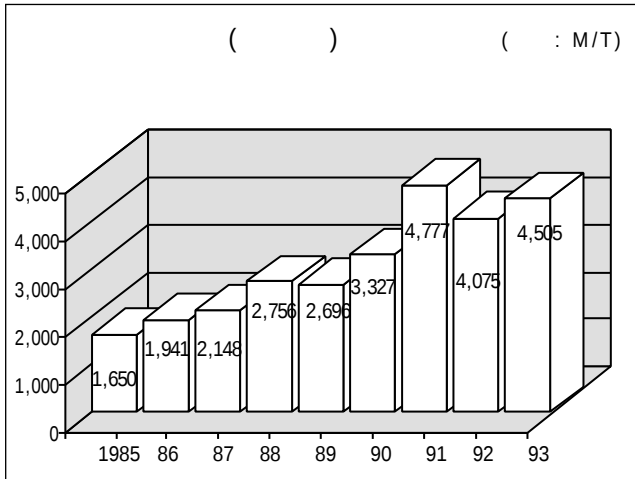
93 1 2419
가 243
90
가
가 90 가 93
가
80 229 6000 15.1%, 1056 6000 69.7%
가 , 90
90 가 가
90 1381 19.0%, 2470 6000 34.0%,
2398 9000 33.0%
가 86% 80 84.8%

93 1 2419
90.8%

3 가
가 9.4%

80 가

가



가

가

5
FCC 가

Unocal Hydrocracker VRDS Chevron
2 (FCC) 4 B/D, (RHDS) 6 B/D 96

Stone & Webster

FCC 7 B/D, RHDS 5 B/D

97 Hydrocracker 3
(VEDS) 2 5000B/D 2 IFP FCC 3 B/D,
HDS 3 B/D 96

FCC 3 B/D UOP

97

FCC

가

Hydrocracker

Hydrocracking

가 1

324 UOP
Sulfur ADS-11 Support Ball

DHC-8, HC-100

(: M/T, 1000 , %)																
	1990				1991				1992				1993			
	499	15.0	6,694	8.1	738	9,783	8.4	47.9	1,497	11,901	36.7	102.8	1,412	1,856	31.6	5.7
	418	12.6	40,708	49.4	244	34,099	29.4	41.6	126	12,801	3.1	48.4	117	14,346	2.6	7.1
	684	20.6	10,670	13.0	428	12,878	11.1	37.4	656	17,436	16.1	53.3	428	12,878	9.6	34.8
	267	8.0	2,461	3.0	833	7,333	6.3	212.0	113	3,074	2.8	86.4	926	7,646	20.7	719.5
	678	20.4	11,666	14.2	1,059	29,905	25.8	56.2	1,035	45,231	25.4	2.3	604	28,141	13.5	41.6
	283	8.5	1,329	1.6	216	937	0.8	23.7	213	786	5.2	1.4	235	2,626	5.3	10.3
	497	14.9	8,859	10.8	667	20,948	18.1	34.2	435	8,111	10.7	34.8	747	3,171	16.7	71.7
	3,326	100.0	82,387	100.0	4,185	115,883	100.0	25.8	4,075	99,250	100.0	2.6	4,469	70,664	100.0	9.7

)

1 FCC
, 80 Polymerization 37.5%, Hydrogenation 13.3%, Reforming 9.0%,
Oxidation 19.3% Polymerization
90 Polymerization 37.6%
Hydrogenation 가 8.3% Isomerization 6.9%, Dehydrogenation
6.1%, Hydrotreating 5.4% 가 , Alkylation,
Oxy-chlorination

(: M/T, 1000)							
	UNIT	PROCESS					
1	NCC	CO-SHIFT Rxn	CCI				
		HYDROGENATION	CCI	C13-4	Ni+A1	3.2	10
		HYDROGENATION	CCI	C31-1A	Pd+A1	56.4	360
	DPG	HYDROGENATION	ENGELHARD	C31-1	Pd+A1	34.2	200
		HYDROGENATION	GIRDLER	PGC-3	Pd+A1	17.0	540
	T A T O R A	TRANSALKYLATION	UOP	G-35B	Co. Mo+A1	13.1	20
	Y	ALKYLATION	MOBIL	TA-3	Co. Mo+A1	26.6	240
	EB	DEHYDROGEATION	GIRDLER	MEB	A1+Si	3.3	LEASE
	SM	HYDROGEATION	GIRDLER	G84C	Fe,K,Ce,Mo	77.0	650
	C4HTU	POLYMERLZATION	NIPPONSODA	T-309D	Pt+A1	9.4	580
	*PB	DEHYDROGENATION	GIRDLER	ALT13	A1C13	ONCETHRU	(24)
2	NCC	SYNTHESIS	ROHM&HAAS	G-840	Fe,K,Ce,Mo	78.0	902
		DEHYDROGENATION	S.P	CSP-	RESIN	51.6	281
		HYDROGENATION	BAYER	SP CAT	Si-BASED	12.8	437
		CO-SHIFT Rxn	CCI	K-8327	NOBEL METAL	0.9	64
		HYDROGENATION	CCI	C13-3	Ni+A1	2.9	60
	DPG	HYDROGENATION	GIRDLER	C31-1A	Pd+A1	24.6	500
		HYDROGENATION	PROCATALYS	G-58B	Pd+A1	24.6	550
		HYDROGENATION	T	LD-273	Pd+A1	4.9	140
		HYDROGENATION	SHELL	LD-265	Pd+A1	28.8	510
	PYRO TO	HYDROGENATION	SHELL	LD-145	NiMo	7.4	90
		HYDRODEALKYLATION	SHELL	HR-306	Co,Mo	32.8	220
		POLYMERIZATION	APCI	PYROTOL	Cr	21.4	190
	L	POLYMERIZATION	SHELL	SPF, PF	Ti,Cr	ONCETHRU	(2,475)
	*HDPE	POLYMERIZATION	HIMONT	ZIEGLER-	Ti,Mg	ONCETHRU	(2,609)
	*PP	POLYMERIZATION		NATTA			
				-	Preoxide	ONCETHRU	(2,930)

) 1990 가 (*93 가), : 3

Hydrocracker 가
가 PP
93 가 ,
Isomerization Dehydrogenation Alkylation
, Hydrocracker
FCC 가
Ziegler-Natta Ti-Mg
Alkylation AlCl3
Hydroformulation Ziegler-Natta

가 20%

C1

가

가

가

가

가

Ni-Mo, Co-Mo, Ni/Co-W

가

Petzable

가

2000

< 96

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