

< BD >

「 」 「 」 !

NCC

가 EPDM 가 93
 ,95 가
 92 41 6000 8 6000
 , 93 50 2000
 , SBR · BR 93 12 4300 · 6 9800
 8 2000 , 6 9800 가 22 9000 22 3000

< 1 >

(: , %)

		1991()		1993		1995		1998		BD
		202,000		502,000		502,000		502,000		
		198,000		452,000		502,000		502,000		
S B R		73,300	36.8	82,000	35.8	92,500	34.8	105,290	33.1	0.66
SB-Latex		5,900	3.0	7,200	3.1	8,720	3.3	11,680	3.7	0.21
B R		60,980	30.6	69,800	30.5	81,300	30.6	94,300	29.6	1.0
N B R		6,000	3.0	7,000	3.1	8,000	3.1	10,000	3.2	0.6
A B S		53,000	26.6	63,000	27.5	75,000	28.2	97,000	30.4	0.21
		199,180	100.0	229,000	100.0	265,520	100.0	318,270	100.0	
				+223,000		+236,480		+183,730		

) 91 98%, 93~94 90%, 95~98 100% 가

BD

95 가 100% 50
 2000 , SBR 9 2500 (34.8%), SB-Latex 8720 (2.3%), ABS 7
 5000 (28.2%) 26 5520 23 6480
 NCC (BD 9 7000) · (8 6000 , 92 12)
 (5 3000) · (5 7000) , 가
 (5 4000) Mixed-C4 MTBE RAFF-

BD
5
SBR 8 9000 , SB-L 1 7000 , NBR 6000

10 5000 BD
가
11 2000 6 2000

가 9 8000

< 2> 1,3BD () (:)

				BD	
		105,000	BR 95,000	95,000	+10,000
		54,000	ABS 185,000	40,000	+14,000
		86,000			+86,000
		(48,000)	(48,000)		
		(54,000)	(54,000)		
		ABS 60,000	13,000	-13,000	
		245,000		148,000	+97,000
BASF		97,000			+97,000
		(40,000)	(40,000)		
		50,000	SBR 150,000	89,000	}62,000
			SB-L 40,000	17,000	
			NBR 10,000	6,000	
			ABS 30,000	6,000	
			SB-L 20,000	8,000	-8,000
		ABS 60,000	13,000	-13,000	
		147,000		139,000	+8,000
		53,000			+53,000
		57,000			+57,000
			ABS 30,000	6,000	-6,000
		110,000		6,000	+104,000
		502,000		293,000	+209,000

12 MC4

4 5000 BD

가 MC4(13 5000)

BD SBR · BR

가

(CR · IIR)

50~

60%가

3530

7000 90 18.6% 가

1408 8000 22.4%,

1934 4000 6.1% 가

가 가

) C4

가
85~90 5 14.6% 4%p가
18.6% 149 8000
17% 가
가
90~93 13.1%, 93~95 18.2% 90~93 65.8%, 93~95
45.9%
가 89~94 14%, 94~2000 5.7%
89~94 13.5%, 94~2000 9.6%
, SBR BR SBR 90~95 6.2%,
95~2000 4.4% , BR 90~95 7.9%, 95~2000 7.4%
SBR 92 11 7036 , 93 12 4292 , 95 14
, 89 13 15 , 93 3 , 18
BR 9 5000 92 6 4700 , 95

8 1300 , 94 1 5000 , 11

2~3 가 70% , SBR 89 69%, 90 77%, 91 74% , BR 88 66%, 89 82%, 90 76%, 91 64.2% 가

가

SBR 88 1 5951 가 14% , 89 21%(2 1885) , 90 24%(2 6865) , 91 23%(2 5521)

가 S-SBR(5 500 , 22%) Low Cis BR(1 9100 , 87%)

가 가 , . . .

가

SBR(4) , BR(1

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	1990			1991			
E-SBR	88,800	16,600	105,400	85,000	20,000	105,000	China, Copolymer, TSRC, GY
S-SBR	200	4,900	5,100	200	5,500	5,700	Nippon Zeon, Shell, JSR, Asahi
SBR	89,000	21,500	110,500	85,200	25,500	110,700	
High Cis	41,400	2,300	43,700	37,600	2,800	40,400	TSRC, Nippon Zeon, China
Low Cis		14,800	14,800		19,100	19,100	Asahi, Huls, Enichem
BR	41,400	17,100	58,500	37,600	21,900	59,500	
NBR	2,800	5,300	8,100	4,200	5,800	10,000	Nippon Zeon, JSR, Polysar, GY
Regular		29,400	29,400		26,040	26,040	Exxon, Polysar, USSR
Halo		7,200	7,200		7,078	7,078	Exxon, Polysar
IIR		36,600	36,600		33,118	33,118	
CR		9,700	9,700		9,084	9,084	Denki, Dupont, Tosoh, Bayer
EPDM	10,000	5,100	15,100	12,100	5,800	17,900	Exxon, Mitsui, Sumitomo, JSR, Uniroyal DSM, Dupont, Huls, Enichem
IR		4,000	4,000		3,420	3,420	USSR, Kuraray, Nippon Zeon
TPR		5,400	5,400		5,000	5,000	Shell, Asahi, Nippon Zeon, TSRC
		5,600	5,600		6,000	6,000	Dupont, NOK, Nippon Zeon, Dow
Solid	143,200	110,300	253,500	139,100	115,622	254,722	
SBR Latex	11,600	11,400	24,000	24,000	4,000	28,000	JSR, Nippon Zeon, BASF
		3,300	3,300		3,500	3,500	Nippon Zeon, JSR, Bayer, BASF
Latices	11,600	14,700	27,300	24,000	7,500	31,500	
		254,500	254,500		280,200	280,200	

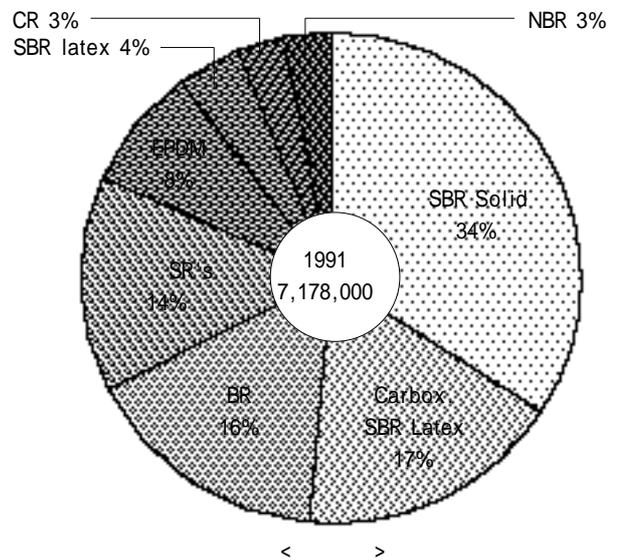
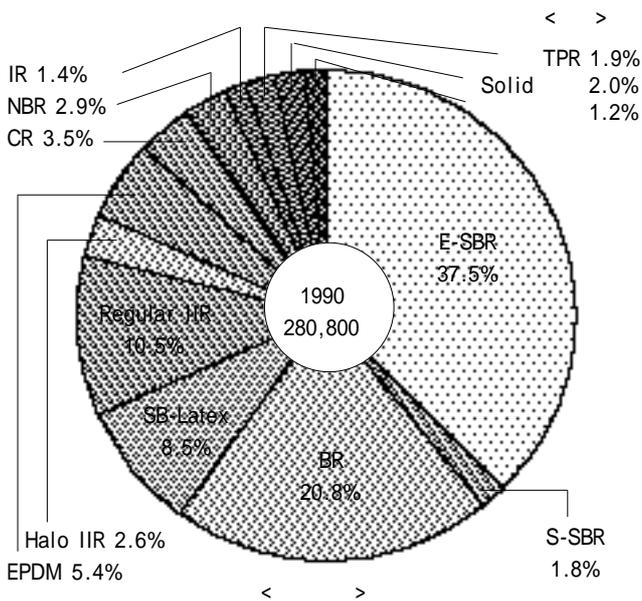
가,

92 SBR 11 7036 , 15 (100%가) , 2 3700

9 4236 3 2964 ,

95 SBR ()가 14 200 18 (100%가

), 4 (100%가) 22 2000 . 95 11
 2900
 6 7100
 92 BR 6 4700 91 7.9% 가
 9 5000 () , 11.0% 가 3 300
 , 95 , 가 100% 14 , 8
 1300 6 ~7
 High Cis BR Low Cis



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		1988	1989	1990	1991	1992				
S B R		130,000	150,000	150,000	150,000	150,000	30,000	180,000	1993	JSR
							40,000	40,000	1995	Good-Year
B R		130,000	150,000	150,000	150,000	150,000	70,000	220,000		
		60,000	90,000	90,000	90,000	95,000	15,000	110,000	1994	JSR
SB-Latex							30,000	30,000	1995	Good-Year
		60,000	90,000	90,000	90,000	95,000	45,000	140,000		
SB-Latex		20,000	30,000	40,000	40,000	40,000		40,000		JSR
				20,000	20,000	20,000		20,000		Dow
H S R		20,000	30,000	60,000	60,000	60,000		60,000		
		5,000	5,000	5,000	50,000	5,000		5,000		JSR
N B R		5,000	5,000	5,000	10,000	10,000		10,000		JSR
							15,000	15,000	1995	Good-Year
E P D M		5,000	5,000	5,000	10,000	10,000	15,000	25,000		
		20,000	20,000	20,000	20,000	20,000	20,000	40,000	1993	JSR
E P D M							20,000	20,000		Uniroyal
		20,000	20,000	20,000	20,000	40,000	20,000	60,000		

) SB-Latex Wet Base

89 가
4 2000
SBR BR 95

Multi Purpose Line
Low Cis-BR

Low Cis-BR
가

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(: , %,)

		1990		1991		1992		1995	
S B R		150,000		150,000		150,000		220,000	
		115,026	27.5	111,109	3.4	150,000	35.0	220,000	15.5
		26,855	22.9	25,521	5.0	23,700	7.1	27,300	0.0
		141,881	26.6	136,630	3.7	173,700	26.9	247,300	14.1
		87,103	8.2	84,682	2.8	94,236	11.3	112,900	6.6
		26,265	169.4	25,229	3.9	32,964	30.7	107,100	74.9
	113,958	11.3	110,203	3.3	117,036	6.2	140,200	6.6	
B R		95,000		95,000		95,000		140,000	
		68,713	39.7	60,980	11.3	95,000	55.8	140,000	15.8
		17,101	8.1	21,916	28.2	11,000	49.8	13,800	8.5
		85,814	32.0	82,896	3.4	106,000	27.9	153,800	15.0
		41,576	16.4	38,043	8.5	53,700	41.2	67,500	8.6
		20,842	80.4	27,302	31.0	30,300	11.0	72,500	46.4
	58,677	13.9	59,959	2.2	64,700	7.9	81,300	8.5	
SB-Latex		60,000		60,000		60,000		60,000	
		20,522	33.0	22,367	9.0	50,000	123.5	60,000	6.7
		20,451	10.3	4,133	79.8	4,000	3.2	6,200	18.3
		40,973	20.6	26,500	35.3	54,000	103.8	66,200	7.5
		19,924	33.0	22,712	14.0	44,600	96.4	67,800	17.3
		387	11.0	5,867	NA	5,400	8.0	5,000	2.5
	40,375	20.4	26,845	33.5	48,600	81.0	74,000	17.4	
E P D M		20,000		20,000		40,000		60,000	
		22,920	56.4	21,528	6.1	27,000	25.4	48,000	25.9
		5,307	6.6	5,805	9.4	6,000	3.3	6,000	
		28,227	38.8	27,333	3.2	33,000	20.71	54,000	21.2
		11,644	90.9	12,126	4.1	12,800	5.6	14,800	5.2
		10,732	28.8	7,447	30.6	20,200	171.3	17,000	5.3
	16,951	43.9	17,931	5.8	18,800	4.8	20,800	3.5	

) = () + SB-Latex 90,91 (Wet Base)
95 . 100%가

SB-Latex 4 , 2 6 (Wet Base)
5 6000
SB-L 90 90
2 7~8%
51%, 41% 가
EPDM 91 가 1 7931 , EP가 2
EPDM EP가 2 1528 , 1 2126 7447

5805

8

가 2

EPDM

1 2800

가 35% 7000

2

2 7000

1 4200

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		SBR			High Cis- BR	
		E-SBR	S-SBR			
1985	248,200	34,900		34,900	11,000	
1986	298,000	37,700	100	37,800	12,800	
1987	335,700	43,400	100	43,500	14,700	106,800
1988	389,200	47,100	1,200	48,300	19,000	123,800
1989	391,100	43,900	1,300	45,200	17,600	124,400
1990	453,900	52,000	2,000	54,000	22,000	144,400
1991	541,000	62,000	2,400	64,400	26,200	172,100
1992	614,000	70,400	2,700	73,100	29,700	195,300
1993	696,900	79,900	3,100	83,000	33,700	222,000
1994	791,000	90,700	3,500	94,200	38,300	252,000
1995	852,700	97,800	3,800	101,600	41,300	272,000
1996	919,200	105,400	4,100	109,500	44,500	293,200
1997	990,900	113,600	4,400	118,000	48,000	316,100
1998	1,068,200	122,500	4,700	127,200	51,700	340,800
1999	1,151,500	132,100	5,100	137,200	55,700	367,400
2000	1,241,300	142,400	5,500	147,900	60,000	396,100

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(:1000)

		1988	1989	1990	1991	1993	1994	1995
	P C	8,810	8,810	13,310	13,310	16,410	16,410	28,310
	L T	3,190	3,190	3,190	3,190	3,190	3,190	3,190
	T B	1,770	2,470	2,470	2,470	2,470	2,470	2,470
	O T	30	30	30	30	30	30	30
		13,800	14,500	19,000	19,000	22,100	22,100	34,000
	P C	7,355	} 15,000	17,000	17,000	22,000	22,000	22,000
	L T	3,220						
	T B	1,465						
	O T	60						
		12,100	15,000	17,000	17,000	22,000	22,000	22,000
Michelin Korea	P C	2,100	2,100	2,100	2,100	2,100	2,100	2,100
	L T				(2,900)	(2,900)	(2,900)	(2,900)
		2,100	2,100	2,100	2,100	2,100	2,100	2,100
	L T	650	650	650	650	650	650	650
	T B	240	240	240	240	240	240	240
	O T	90	90	90	90	90	90	90
		980	980	980	980	980	980	980
Good Year Korea	P C					(3,200)	(3,200)	(3,200)
	L T					(3,200)	(3,200)	(3,200)
		28,980	34,580	39,080	39,080	47,180	47,180	59,080

)

BR 90 3 1700 (54.4%), 1 8000 (30.9%), 8600 (14.7%) 95
 4 8943 (60.2%), 1 9999 (24.6%), 1 2358 (15.2%)
 가 ,
 SB-L 91 가 2 8173 (Dry Base) , XSBR L'x가
 70.2%(1 9780) , SBR 7430 26.4%, P SBR 963 3.4% XSBR L'x
 가

< 9> 가 (: /)

	1988		1989		1990		1991.6	
	가	가	가	가	가	가	가	가
E-SBR								
#1500	1,230	1,010	1,356	1,169	1,356	1,197	1,289	1,320
#1700	940	910						
B R								
High Cis	1,160	1,090	1,439	1,198	1,484	1,253	1,404	1,274
Low Cis		1,160		1,216		1,309		1,334
TPR								
SBS		1,500		1,546		1,593		1,729
SIS		2,200		2,000		2,189		1,922
NBR	1,520	1,713		1,807		2,003		2,087
I I R								
Regular		1,90		1,790		1,880		1,950
Halo		2,060		2,060		2,121		2,271
C R		2,290		2,290		2,396		2,562
EPDM				1,708		1,747		1,851

) 가 가 , 가 CIF . 가

XSBR L'x 1 8990 96.0%, 790 4.0% , SBR L'x
 680 9.1%, Foam Rubber 2100 28.3%, ABS 4650 62.6%
 PSBR 963
 SB-L 70%

Coated Paper, Art Paper

가 , 20%

가 가

가 , 가

, E-SBR #1500 가 86 1230 , 89~90 1356 , 91 6 1289
 , High Cis BR 90 1484 91 6 1404
 , 가 가 , 91
 SBR 8070 30%, BR 1710 10% ,
 가 . S-SBR · Low Cis-BR 가 ,

EPDM 가 10 154 1000 11 153 2000 , 152 1000

가 가

, SB-L 가 87 76 , 88~90 60 , 91 3 75 ,
 가

90

E-SBR 37.5%, S-SBR 18% SBR 39.3%
 , BR 20.8%, SB-L 8.5%, Regular IIR 10.5%, Halo IIR 2.6%, CR 3.5%, EPDM 5.4%

SBR

, 91

3%

9%, NBR 4%

BR, IIR, SB-L, EPDM, CR

SBR(Solid) 34%, XSBR-L 17%, BR 16%, EPR 8%, CR 3%, NBR

, 95 SBR(Solid) 33%

, SB-L EPR 가

BR 16%, EPR

< 10> SB-Latex

(:1000 , Dry Base,)

		1987		1988		1989		1990		1991		가 ('87 ~ '91)
X S B R		11,000	93.2	13,100	91.6	14,700	96.1	16,700	96.0	18,990	96.0	14.7
		600	5.1	700	4.9	600	3.9	690	4.0	790	4.0	8.0
		200	1.7	500	3.5							
		11,800	100.0	14,300	100.0	15,300	100.0	17,390	100.0	19,780	100.0	13.9
S B R		500	12.5	600	13.3	600	12.5	640	11.2	680	9.1	8.3
	Foam Rubber	700	17.5	1,500	33.3	1,500	31.3	1,780	31.3	2,100	28.3	37.8
	A B S	1,900	47.5	2,200	48.9	2,300	47.9	3,270	57.5	4,650	62.6	26.2
		900	22.5	200	4.5	400	8.3					
		4,000	100.0	4,500	100.0	4,800	100.0	5,690	100.0	7,430	100.0	17.1
P S B R		1,100		1,200		900		930		963		2.3
		16,900		20,000		21,000		24,010		28,173		13.7

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(:1000)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
	2,910	3,058	3,139	3,162	3,127	3,162	3,188	3,106	3,251	3,128	3,150
	3,320	3,437	3,395	3,099	2,981	3,062	2,970	3,017	3,065	3,213	3,327
	438	517	515	511	548	567	558	594	598	648	636
	1,711	1,866	1,895	1,938	1,983	1,981	2,014	2,087	2,193	2,209	2,320
	8,379	8,878	8,944	8,710	8,639	8,772	8,730	8,804	9,107	9,198	9,433

) , IISRP

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(:1000)

	1991	1995	1991	1995	1991	1995	1991	1995	1991	1995
SBR-Solid	637	666	775	856	320	349	641	703	67.2	75.2
SBR-Latex	125	130	43	52	8	9	90	97	4.7	5.6
Carboxylated SBR	485	535	501	548	25	26	180	223	6.5	7.0
B R	266	280	443	492	103	136	335	389	24.7	27.9
EPDM	212	250	224	262	12	18	152	187	3.0	4.4
C R	76	76	77	78	17	19	72	81	5.8	6.6
NBR(Solid & Latex)	93	98	72	89	13	16	68	82	3.9	4.7
	258	283	406	465	55	64	252	291	26.1	28.5
	2,152	2,318	2,541	2,842	553	637	1,790	2,052	141.9	152.9
	1,040	1,080	905	990	271	314	1,925	2,340	160.0	178
	3,192	3,398	3,446	3,832	824	951	3,715	4,392	301.9	330.9
(%)	67.4	68.2	73.7	74.2	67.1	67.0	48.2	46.7	47.0	46.2
TPE	265	325	278	364	9	25	135	162	5.7	7.5

) Non-Carboxylated IIR IR IISRP(90)

24.6% 332 7000 35.3%, 315 33.3% 943 3000 232 63
6000 6.7%

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가	SBR Solid	SBR Latex	Carbox Latex	B R	I R	E R	IIR	NBR Solid	NBR Latex	C R	
Australian Synthetic	35,000	2,000		12,000							49,000
Maplex Australia			3,000								3,000
Dow Chemical		2,000	5,000								7,000
Marbon		2,000									2,000
Revinex			4,000								4,000
	35,000	6,000	12,000	12,000							65,000
APAR	4,000										4,000
Indian Petrochemicals				18,000							18,000
Synthetic & Chemicals	41,000	1,000						2,000			44,000
	45,000	1,000		18,000				2,000			66,000
Asahi Chemical	67,000		51,000	62,000							180,000
DSM-Idemitsu						40,000					40,000
Dainippon			4,000						2,000		6,000
Denki Kagaku										45,000	45,000
Dupont-Showa Denka										20,000	20,000
Japan Butyl							100,000				100,000
Japan Elastomer	25,000			11,000							36,000
Japan Synthetic	205,000	72,000		75,000	30,000	40,000		30,000			452,000
Kuraray					(30,000)						(30,000)
Mitsubishi Kasei	65,000										65,000
Mitsui						60,000					60,000
Mitsui Toatsu			10,000								10,000
Nihon Solution	13,000										13,000
Nippon Zeon	232,000	6,000	10,000	58,000	37,000			21,000	20,000		384,000
Sumitomo Chemical	50,000					35,000					85,000
Sumitomo-Naughtuck		14,000	38,000						7,000		59,000
Takeda			18,000					1,000	3,000		22,000
TOSOH										24,000	24,000
UBE Industries				60,000							60,000
	657,000	92,000	131,000	266,000	67,000	175,000	100,000	52,000	32,000	89,000	1,661,000
EP						20,000					20,000
	165,000	15,000	15,000	95,000				5,000			295,000
	165,000	15,000	15,000	95,000		20,000		5,000			315,000
Croslene		2,000							300		2,300
President		9,000	6,000					12,000	3,000		30,000
Shin Foong		16,000	4,000								20,000
Taiwan Synthetic	120,000			40,000							160,000
	120,000	27,000	10,000	40,000				12,000	3,300		212,000
	1,022,000	141,000	168,000	431,000	67,000	195,000	100,000	71,000	36,300	89,000	2,320,000

가 91 717 7900
254 1000 35.4%, 215 2000 30.0% 179 24.9%
55 3000 7.7%, 14 1900 2.0%
95 800 1900 205
2000 91 24.9% 25.6%
가 91 232 5.0%

10%

SBR

40%,

60%, BR

53%,

37%,

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< 1992/7/1 >