

<H-acid>

가 , ”

() Sanhwa가 73~94% H-acid
, 91 9200 , 92 15 200 가
H-acid , San-hwa H-acid 가 kg 11~13 ,
가 6 50 ~6 70 가 .
Sanhwa H-acid 2000 300~400 ,
600~700 가 , 가
가 6 ~6 50
H-acid 가 , 90 가 6 46 가
, 91 1 6 15 , 가
10 7 44 가
가 가 가 ,
H-acid 가 “ ”
H-acid
, 가 H-acid 91 11 가 91 3/4
, 92 1/4 6 2/4 6 50 ,
6 30 6 9.5% .

< 1> H-acid 가
(: /kg)

1991	1/4	6.10	5.20	5.00	—
	2/4	6.50	5.20	5.00	—
	3/4	6.50	5.25	5.00	—
	4/4	6.50	5.60	—	6.30
1992	1/4	6.70	5.60	—	6.30
	2/4	6.70	5.60	—	6.00
	3/4	6.70	5.70	—	6.00

< 2> H-acid 가
(: /kg)

	()											
91 1/4	—	—	—	5.80	6.20	6.10	4.59	—	5.20	4.71	4.85	5.0
2/4	—	—	—	6.20	6.30	6.50	4.63	—	—	4.88	4.85	5.0
3/4	—	—	—	6.00	6.50	6.50	4.63	—	5.25	4.824	5.15	5.0
4/4	6.25	6.30	6.30	6.00	6.50	6.50	4.77	5.23	5.60	4.824	5.15	—
92 1/4	6.25	6.30	6.30	6.00	7.00	6.70	5.05	—	5.60	4.825	5.50	—
2/4	6.00	6.00	6.00	6.50	7.00	6.70	4.98	—	5.60	5.119	5.50	—
3/4	6.00	6.00	6.00	6.50	—	6.70	4.98	—	5.70	5.180	—	

가 50
가 , 가

H-acid 가 , H-acid
가 H-acid

가

3000

H-acid 91 2660 , 92 3000

H-acid 가 2000 100% 가

1000

1 1000

< 3> H-acid

Lot No.	H-acid (%)			HPLC (20g/3000ml, %)
J082	86.70	86.600	86.717	0.0229
J122	84.10	83.694	85.221	0.0165
D201	84.40	82.912	—	0.0205
G301	85.10	85.938	85.006	0.0279
T261	84.40	84.270	84.846	0.0285
F022	84.30	84.182	84.318	0.0215
F032	84.20	84.100	84.327	0.0335
M032	84.40	84.191	84.983	0.0225
M042	83.50	83.458	84.642	0.0210
F242	83.80	84.329	84.519	0.0110
M092	84.10	84.187	84.895	0.0195
M182	83.60	83.004	—	0.0140
M192	84.70	84.395	—	0.0155
A042	83.70	83.546	—	0.0114
A105	83.70	83.934	—	0.0160
A052	85.30	85.638	—	0.0106
A132	84.50	85.248	—	0.0125
M122	85.60	83.640	84.893	0.0190
M222	83.50	83.440	84.775	0.0189
A072	85.50	83.648	84.287	0.0115
U032	84.50	84.895	86.273	0.0185
A082	83.90	82.986	83.680	0.0105
U052	85.80	85.148	85.330	0.0180

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< 4> H-acid

Lot No.		H-acid (%)			HPLC (20g/3000ml, %)
Zenith	187	81.00	81.421	81.317	0.0345
	188	81.40	81.478	81.420	0.0265
	189	81.30	81.276	—	0.0475
	213	81.65	81.568	81.508	0.0405
	214	81.05	80.959	81.972	0.0450
	215	80.90	80.802	81.762	0.0444
	220	81.88	80.332	80.682	0.0340
	221	80.70	79.425	79.164	0.0425
	222	81.75	80.454	—	0.0240
	234	81.95	81.052	81.985	0.0235
	235	81.90	81.398	82.003	0.0219
	236	81.75	81.813	82.274	0.0230
	286	81.96	80.937	—	0.0165
	287	82.00	80.858	83.359	0.0150
	288	82.28	81.529	—	0.0165
	290	81.90	81.962	—	0.0405
	296	82.75	82.386	—	0.0185
	297	81.05	81.256	—	0.0240
	299	82.60	82.010	—	0.0170
	244	81.75	81.749	—	0.0075
	245	81.70	82.193	83.349	0.0275
JIN-DAL	247	81.70	81.567	—	0.0170
	248	81.20	81.430	82.761	0.0145
	317	81.96	78.534	80.779	0.0085
DAL	318	82.00	78.109	79.382	0.0245
	319	81.80	77.317	79.240	0.0205

92 H-acid 900 가 840 ,

597 3 가 2337 3000 80% ,

180 , 144 , 120 , 48 , 60

Chemical H-acid Mitsui · Sanhwa Priya Chemical Gilin
 Chemstar , Sanhwa Zenith Chemical Gilin Chemical,
 Leeon Zenith · Jindal
 Sanyo H & H International, Gilin Chemical,
 Gilin Chemical
 , H-acid 가 91 1/4 6 10 5 20
 , 2/4 6 50 5 20 5 3/4
 6 50 5 25 5 , 4/4 6 50 5 60
 6 30 가

< 5> H-acid

Lot No.	(%)			(20g/3000ml, %)	Lot No.	(%)			(20g/3000ml, %)
			HPLC					HPLC	
10483	83.1'0	82.982	83.157	0.0195	20130	84.60	84.130	84.866	0.0095
10495	85.20	84.769	—	0.0335	20191	85.80	84.178	83.280	0.0135
10510	83.50	83.105	83.672	0.0195	20195	85.50	83.784	84.680	0.0060
10529	82.70	81.524	83.105	0.0180		85.00	84.706	84.363	0.0809
20067	83.70	82.058	84.113	0.0170		86.00	86.068	—	0.0275
20108	86.60	85.658	—	0.0155		87.00	86.900	86.421	0.0465

, 가 92 1/4 3/4 6 70
 , 5 60 ~5 70 가 ,
 6 30 6
 , 가
 가 가
 가 가 가 73~94%
 H-acid 91 3/4 가 4/4
 가 92 2/4 가
 91 1/4 633 388 2000 , 2/4 687 380 9000 , 3/4 688 390
 8000 , 4/4 651 382 4000 91 2659 1492 3000
 92 1/4 603 328 5000 , 2/4 840 472 6000
 3 90% 가
 ,
 , 91 1/4 207 127 2000 , 2/4 223 144 4000
 , 3/4 220 146 1000 , 4/4 225 142 2000 91 876 (559
 5000) 38.0%, 44.9%
 92 1/4 136 85 8000 , 2/4 144 93 9000
 91 1/4 90 42 4000 , 2/4 154 72 5000 , 3/4 173 85 3000 ,
 4/4 203 108 5000 620 (308 5000)
 92 1/4 194 97 1000 , 2/4 298 161 5000
 39.6%, 39.5%
 91 1/4 가 92 가 , 91 1/4 256 115

2000 , 2/4 212 96 9000 , 3/4 216 104 , 4/4 122 61 2000
807 (377 3000)
92 가, 1/4 213 102 3000 , 2/4 310 153 4000 .

가 가 , 가
가 H-acid 가
H-acid 가
가 H-acid ,
가 가 ,

< 6> H-acid (:)

	900	Mistui · Sanhwa, Priya Chemical, Gilin Chemical ()
	840	Sanhwa, Zenith Chemical, Gilin Chemical ()
	597	Chemstar, Jindal · Zenith, Leeon
	180	H & H International
	144	Gilin Chemical
	120	,
	60	Bayer
	48	, Gilin Chemical
	111	, ,
	3,000	

< 7> H-acid ()

Red 3BL	0.373
Green A	0.278
Black MA	0.207
Black 10B	0.224
Black HR conc	0.241
Black Ms	0.197
Black Ms conc	0.199
Black HA	0.205
Green-B	0.278
Black-EX	0.333
Black-EX Hi	0.333
Black-RX	0.134
Red-3B	0.373
Red-3BN	0.5183
Red-6BN	0.3235
N-BLUE-GR	0.226
N-BLUE-2GB	0.2957
Balck-B	0.252
Black-GR	0.199
Black-B conc	0.252
Red-BBN conc	0.304
Balck-GR SP conc	0.199
Black-GR conc	0.2189
Black-MRA	MA 0.207
Black-MS SP conc	0.199
Balck-10B	0.224
Black-GR(LQ)	0.100
Black-KX	0.134
Black-MRN conc	0.255
Balck-DEN	0.079
Black-MS conc	0.197

< 8>

(:%)

	W-acid	Chromotropic-	KOch-acid	Niro
()	0.541	acid	0.510	0.444
Chemstar()	1.328	3.060	0.438	—
Zenith()	1.205	2.528	0.0506	—
Jindal()	1.458	1.318	0.664	—

) H-acid 500ppm 20μ

H-acid

가
H-acid

, H-acid

가

가

6

가

가

H-acid ()

(

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H-acid가

, H-acid 가

가

가

가

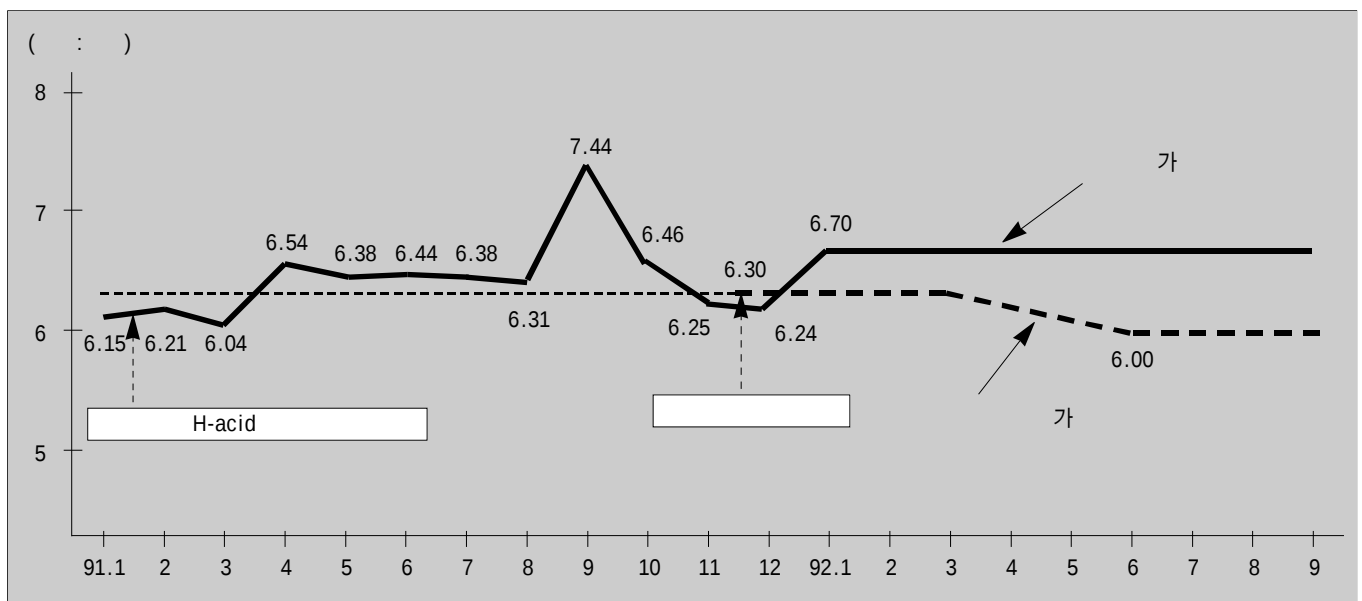
가

H-acid

가

< >

H-acid 가



< 9> H-acid (가) (: , , %)

가	1988		1989		1990		1991	
	1,227	12,248,131	858	7,778,865	936	5,957,881	876	5,594,981
	191	1,671,860	645	4,328,569	567	2,872,407	620	3,085,407
	—	—	—	—	51	214,777	807	3,773,198
	290	3,127,187	221	2,178,847	96	798,493	25	204,015
	123	1,284,352	191	1,831,396	182	1,387,134	310	2,162,566
	35	329,766	148	935,461	822	3,778,800	21	102,767
	1,866	18,661,296	2,063	17,053,138	2,654	15,009,502	2,659	14,922,944

< 11> H-acid () (: , 1000 , %)

		1990	1991					1992	
			1/4	2/4	3/4	4/4		1/4	2/4
		2,654	633	687	688	651	2,659	603	840
		15,010	3,382	3,809	3,908	3,824	14,923	3,285	4,726
		2,313	553	589	609	550	2,303	543	752
		(87.2)	(87.4)	(85.7)	(88.5)	(84.5)	(86.6)	(90.0)	(89.5)
		12,544	2,847	3,134	3,354	3,119	12,453	2,852	4,088
()		(83.6)	(84.2)	(82.3)	(85.8)	(81.6)	(83.4)	(86.8)	(86.5)
		341	80	98	79	101	357	60	88
		(12.8)	(12.6)	(14.3)	(11.5)	(15.5)	(13.4)	(10.0)	(10.5)
		2,466	535	675	554	705	2,470	433	638
()		(16.4)	(15.8)	(17.7)	(14.2)	(18.4)	(16.6)	(13.2)	(13.5)

) , , :

< 10> H-acid (: , , %,)

1985	497.271	—	2,760,967		
1986	863.798	73.7	5,240,222	89.8	"
1987	1,450.261	67.9	12,962,138	147.3	"
1988	2,062.257	42.2	20,653,365	59.3	"
1989	2,300.000	20.0	23,400,000	13.3	"
1990	2,654.000	10.0	15,009,502	11.5	"
1991	2,659.000	0.18	14,922,944	0.5	11
1992	3,000.000	12.82	—	—	,
1995	4,000.000	33.33	—	—	

가 H-acid

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H-acid

3

H-acid

가

가

,

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가 5 50

가

가

< 12> 가 H-acid

(: , 1000 , %)

		1990	1991					1992	
			1/4	2/4	3/4	4/4		1/4	2/4
		936 (40.5)	207 (37.4)	223 (37.9)	220 (36.1)	225 (40.9)	876 (38.0)	136 (25.0)	144 (19.1)
		5,958 (47.5)	1,272 (44.7)	1,440 (45.9)	1,461 (43.6)	1,422 (45.6)	5,595 (44.9)	858 (30.1)	939 (23.0)
		567 (24.5)	90 (16.3)	154 (26.1)	173 (28.4)	203 (36.9)	620 (26.9)	194 (35.7)	298 (39.6)
		2,872 (22.9)	424 (14.9)	725 (23.1)	853 (25.4)	1,085 (34.8)	3,085 (24.9)	971 (34.0)	1,615 (39.5)
		810 (35.0)	256 (46.3)	212 (36.0)	216 (35.5)	122 (22.2)	807 (35.0)	213 (39.2)	310 (41.2)
		3,714 (29.6)	1,152 (40.5)	969 (30.9)	1,040 (31.0)	612 (19.6)	3,773 (30.3)	1,023 (35.9)	1,534 (37.5)

) , :

< 13>

	· H-acid	· ,
가	· 가 kg 11~13 가 6 20 ~6 50 74~93% · 6 70 ,	· 50 가 가 · 가 가 가 (6 →6 50) 가 H- acid가 6 30 →6 9.5%
	· 2000 · 50%	· 가 ·
	·	· H-acid 3000 2000 , 1000
	· ICl, ,	· 가
	· 가 가 가	· 5 50 가

70

가

6

6

가

, 9

10

가

H-acid

가

< 1992/10/1>