

THE KOREAN PETROCHEMICAL INDUSTRY

Grown To Petrochemical Giant

The petrochemical industry in Korea has made significant progress, despite its short history of 20 years, thanks to the country's overall rapid economic growth and the aggressive efforts by the private sector as well as the government.

At the end of 1970s, Korean petrochemical facilities consisted of no more than a naphtha cracker with an annual ethylene capacity of 155,000 MT and its down-stream plants. Thanks to the completion of a second petrochemical complex in Yeochon at the end of 1979, which included a naphtha cracker with an annual ethylene capacity of 350,000 MT and its down-stream plants, and the large scale construction of the new plants as well as expansion projects since the late 1980s, Korea has now become a prominent petrochemical producing country with an annual ethylene capacity of 3.57 million MT and an annual synthetic resins capacity of 6.343 million MT and a synthetic fiber raw materials capacity of 2.005 million MT. In 1993 Korea ranked as the 5th biggest petrochemical producing country and the 4th biggest petrochemical exporting country.

The plant capacities of derivatives such as synthetic resins, synthetic fiber intermediates, and synthetic rubbers also grew substantially in line

with the expansion of olefins and aromatics capacities. At the end of 1993, the annual production capacity of synthetic resins, on the basis of general purpose plastics LDPE, HDPE, PP, PVC, and PS/ABS, stood at 6.083 million MT. The annual production capacity of synthetic fiber intermediates, on the basis of Caprolactam, AN, TPA, and EG, stood at 2.005 million MT. The annual production capacity of synthetic rubbers such as SBR and BR, reached 245,000 MT. The production capacity of most other petrochemical products such as PA and Benzen also increased rapidly.

Ample Demand And Supply

The domestic demand for petrochemical products increased substantially each year until the end of 1980s, owing to the rapid growth of the national economy. During the 1970s, it grew at an average annual rate of 20%, thanks to the growing export of related products. During the 1980s, we saw an annual average growth rate of 13%, which was the 1.5 times the GNP growth rate. The rapid growth during the latter half more than offset the depressed demand following the second oil shock. While the growth rate has declined since the beginning of 1990s, it still

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<Table 1> Capacity of Petrochemical Products

	1990	1992	1993	1994	94/90
Ethylene	1,155	3,255	3,255	3,570	3.09
Syn. Resins	3,748	5,158	5,158	6,343	1.69
Syn. Fiber Raw Mat'ls	1,492	1,880	1,880	2,005	1.34
Syn. Rubbers	240	245	245	245	1.02

Source : Korea Petrochemical Industry Association.

<Table 2> Domestic Demand for Petrochemical Products

(Units:1,000 MT)

	1980	1985	1990	1994
Ethylene	365	569	1,268	3,301
Syn. Resins	592	1,140	2,566	3,679
Syn. Fiber Raw Mat'ls	612	1,125	2,070	3,039
Syn. Rubbers	108	114	173	192

Source : Korea Petrochemical Industry Association.

remains at a rate somewhat higher than the GNP growth rate. In 1994, domestic demand increased, thanks to the growth of demand-related industries. Domestic demand for ethylene was 3.201 million MT, and the demand for other petrochemical products, especially synthetic resins also increased around 10%.

The export of petrochemical products has grown rapidly. This is due to over-capacities. In the 1990s, however, most products are in over-supply situations, except for some of the fiber intermediates such as Caprolactam and AN, as the new and expanded capacities came on stream whereas the demand growth subsided. The export of petrochemical products, especially synthetic resins, has substantially increased lately, as the combined result of the Korean petrochemical industry's aggressive export drive, an effort to alleviate the supply-demand imbalance and to maintain a stable rate of operation, and of the rapid economic growth of major importing countries, such as the Southeast Asian nations and China. And after 1994, the petrochemical industry has boomed again world-wide, because of bottlenecked major facilities and unorderly weather. In 1994, the export of ethylene amounted to 364,000 MT. The amount of synthetic resins exported was 2,306,000 MT, while the export amount of synthetic rubbers was 112,000 MT. These were about 10 times the figures in 1990.

With regard to supply, until the end of 1980s, most petrochemical products were in acute short-

ages because of insufficient production. In the 1990s, however, most products are in an over-supply situation, as the new and expanded capacities came on.

The year 1995 was very good for the Korean petrochemical industry. In 1995, supply of each product grew at an average annual rate of 20%. The supply of ethylene and synthetic resins had prominently high annual growth rates, helped by continued increases in both domestic and export demand.

Cyclical Upswing Up Through 1997

The petrochemical industry displays a strong cyclical nature. The industry has difficulty in flexibly adjusting the amount of production to fluctuating demand.

During the period from 1989 to 1993, the Korean petrochemical industry suffered from a cyclical slump, which means demand diminution and low prices. In addition, the profitability of the petrochemical firms has been deteriorating, due to world-wide oversupply and the declining prices of petrochemical products.

After 1994, however the world petrochemical market has begun a cyclical upswing, due to expanded demand and the bottlenecked producing utilities of major producers. This cyclical upswing affected the Korean petrochemical industry by expanding exports.

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<Table 3> Supply of Petrochemical Products

	(Unit: 1,000 MT)				
	1985	1990	1993	1994	1995 ¹⁾
Ethylene	1	17	236	364	212
Syn. Resins	253	446	2,272	2,306	2,925
Syn. Fiber Raw Mat'ls	6	47	122	87	194
Syn. Rubbers	13	47	98	112	65

Source: Korea Petrochemical Industry Association.

Note: 1) aggregated to the 3rd quarter.

Being a highly capital-intensive industry, petrochemical companies has to cover its huge overheads when the demand is weak. But it is also well positioned to benefit from a pickup in demand. Recent strong demands from abroad are helping to reduce depreciation charges per unit. This should allow petrochemical firms to enjoy improved profitability. In 1995, this situation continued.

As a result, the petrochemical industry boomed after 1994, being recovering from increased losses which were the results of oversupply and continuously declining unit prices, and recorded big profit gains. In 1994, the sales of 13 petrochemical firms registered at the stock market increased by 13.0% over the previous year, and current profit of these firms increased by 425.9% over the previous year.

And during the first half of 1995, sales of these firms recorded 3.712 trillion won, which was an increase of 35.9% over the previous year. The current profit of these firms registered 329 billion won, an increase of 279.6% over the previous year.

It is our expectation that the recent cyclical upward trend will continue up through 1997 with strong petrochemical product prices, and profits of Korean petrochemical firms will improve sharply, because a worldwide excess-supply is not expected until 1998. In the meantime, the Southeast countries and China, which will continue their rapid economic growth, are expected to maintain their massive import of petrochemical products.

VIP

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<Table 4> Sales and Current Profit of Petrochemical Firms

		(bil. won, %)			
		Sales		Current Profit	
Amount	Annual increase rate	Amount	Annual increase rate	Amount	Annual increase rate
(1995.1~6)	1994	1995. 1Q	(1995.1~6)	1994	1995. 1Q
3711.6	13.0%	35.9%	329.0	425.9%	279.6%