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THE DEVELOPMENT OF THE PLASTICS INDUSTRY
IN KOREA^{1/}

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1. Brief History

In the period before mid-1960's, Korea's plastics industry could not proceed beyond the limits of a processing industry dependent on imported foreign raw materials.

However, this situation was changed by the appearance of the PVC manufacturing plant in 1964 and has reached a period of growth as a result of the completion of the Ulsan Petrochemical Complex which successfully started production of PVC in early 1973.

2. Manufacturing Facilities of Raw Materials

The types and capacity of present domestic production facilities of both polymers and monomers for plastics industry are shown in table 1. As shown in table 1, each plant produces a limited number of items on a small scale and thus its capacity is far lower than the minimum economic unit.

But Korea is now planning to expand stepwise the Ulsan Petrochemical Complex from the present capacity of 100,000 Ton/year by ethylene basis to the final one of 350,000 ton /year and newly to construct the initially dropped-out plants, those of DMT, styrene monomer, ethylene glycol, high-density polyethylene, etc.

Moreover, she is now pushing on another impressive petrochemical complex whose capacity is 300,000 ton/year by ethylene basis.

The Complex which is to be located in Kwang-Yang bay, the southern seaside of Korean peninsular will be served in part in early 1976 and surpass the Ulsan Complex in capacity and products. Most of the manufacturing processes of main thermoplastics such as PE, PP, PVC, etc. and some thermosets such as Phenolics, Unsaturated Polyesters, Epoxies, etc. are fully or partially imported, whereas those of PS (GPPS, HIPS, Expandable PS), paste PVC, PVAC, Phenolics, Ureas, Alkyds, etc. have been fully or partially developed and improved by domestic technology.

Present domestic abilities in polymer chemistry and chemical engineering are thought to be adequate for developing and improving new or known processes.

3. Processing Industry

Korea's plastics processing industry is still in the beginning stages in scale, number and technology but has promise of rapid growth, particularly because the supply of main raw materials is relatively stabilized and the demand of plastics products is rapidly increased, parallel to the explosive speed of Korea's economic growth. However, there are such obstacles to be overcome as relatively higher prices of domestic raw materials, excessive duties and commodity taxes on imported resins and processing machines, etc.

The present processing capacity for plastics in Korea in 1973 is shown in table 2.

Injection moulding, extrusion, blow-moulding with thermoplastics are now widely conducted.

Foaming processes with expandable PS beads, polyurethanes and paste PVC-resin are also widely used.

Web impregnation and FRP are attaining popularity in a variety of uses such as laminates for decorative and industrial purposes, fishing rod, boats including fishing boats, tanks, pipes, bath-tubs and other appliances.

Sophisticated processings with an integrated processing plant, automatic control with computer, etc. have not been realized yet but will be in the near future. More than anything else, in Korea, the main handicap is that she has few specialized makers of processing machines, systems, and so, most of the processors being dependent on foreign suppliers to meet their needs.

4. Some problems to solve for further improvement of Korea's plastics industry

As far as the plastics industry is concerned, it has the following problems to be solved for its further advancement:

- a) The manufacture of raw materials at low cost from petrochemical complex.
- b) Expansion of types and capacity of manufacturing facilities of raw materials.
- c) Expansion of the processing industry in a large scale.

- d) Promotion of plastics applications in special fields like agriculture, building and construction.
- e) Advancement of the domestic fabrication of processing machinery and equipment by measures such as import of proto-type machines, technical know-how and so on.
- f) Establishment of modernized tool factories to meet the growing requirements of large and complicated moulds and dies.
- g) Export promotion of plastics goods as well as raw materials.

Table 1 : Production Capacity of Plastics Raw Materials

(unit : \bar{M} /year)

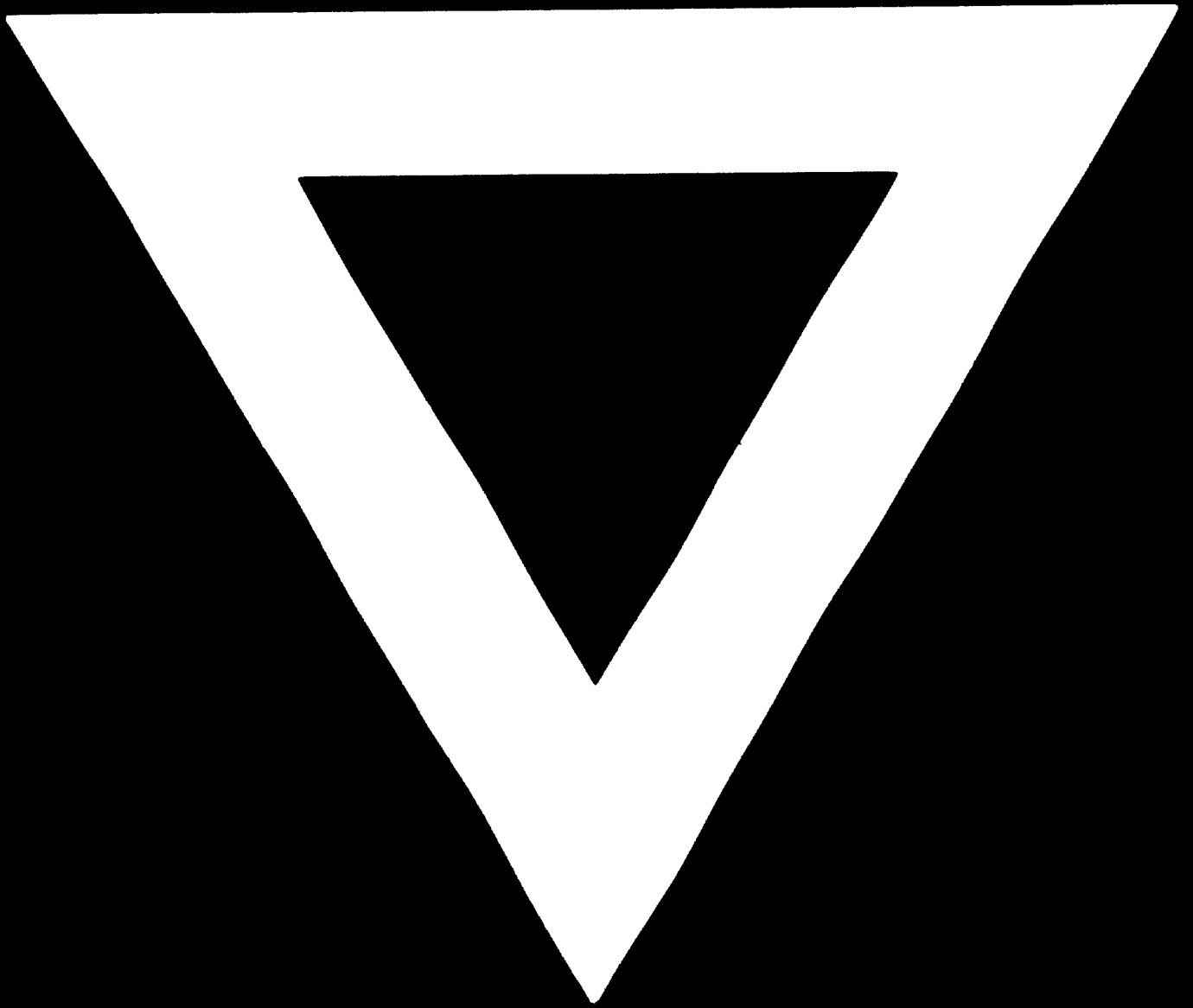
Raw materials	capacity	ref.
PE	50,000	High pressure 20
PP	30,000	
PS	15,000	GF, Expandable IS High Impact IS
PVC	66,000	Paste resin 2ton/day 5 different plants
PC	60,000	
Phenolics	3,000	
Melamines	5,000	
Unsaturated polyester	2,000	
Epoxy resin	800	
SBR	30,000	

Table 2 : Plastics Processing Machinery

(unit : number)

	1972	1973
Calenders	36	40
Injection machines	720	860
Extruders	810	980
High-frequency welders	750	880
Others	600	780
Total	2,916	3,540





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