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**PRESENT STATUS AND FUTURE PLANS OF THE
PLASTICS INDUSTRY IN TRINIDAD AND TOBAGO** ✓

by

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1.0

INTRODUCTION

The two islands of Trinidad and Tobago comprise an independent nation in the Southern Caribbean. Formerly under British rule, the country gained Independence in 1962, though remaining a member of the Commonwealth. With a land area of 1980 square miles (5130 sq km.) the population is of the order of 1.1 million.

The plastics industry in Trinidad and Tobago is in its youth. There is as yet no indigenous manufacture of synthetic resins, the industry being confined to processing only.

2.0

PRESENT STATUS OF THE INDUSTRY

Available trade figures on the per capita consumption of plastics from 1966 to 1971 are given in Table 1. These figures are obtained from Customs and Excise data on imports and exports, and are uncorrected for synthetic resins which are incorporated in exported items such as paint and varnish. However, this is not a major source of error, and consumption in 1966 of say 5 lbs per capita compares favourably with published figures¹ of per capita consumption in 20 developing countries, including Colombia, where the average was 3.1 lbs per capita in 1966.

TABLE 1

	<u>Population (estimated)</u>	<u>Imports (tons)</u>	<u>Exports (tons)</u>	<u>Consumption (tons)</u>	<u>Consumption per capita (lb)</u>
1966	995,000	2590	45	2545	5.68
1967	1,001,000	4000	60	3940	8.76
1968	1,007,000	3970	135	3835	8.47
1969	1,013,000	7880	210	7670	16.85
1970	1,020,000	7800	200	7580	16.55
1971	1,027,000	8100	120	7980	17.30

The apparent flattening of the growth curve from 1969 to 1971, in addition to reflecting the political disquiet occurring during this period, could also indicate the possible approaching saturation of certain local markets. In particular, the sharp growth from 1966 could be indicative of the encroachment of plastics into fields previously held by traditional materials, with a significant degree of saturation by 1969/71, this situation being typified by the use of decorative laminates in furniture. It can therefore be expected that future growth in such fields is likely to reflect a truer picture of actual market expansion.

The published trade data, while giving figures for total imports of "synthetic plastic materials", do not differentiate between raw materials and finished products, and thus give no indication of the size of the plastics industry in Trinidad and Tobago. From data collected by a visiting U.N. expert this year (see Tables 2 and 3) the current raw material consumption of the plastics industry is 7300 tons per annum. This is divided for convenience into "Thermoplastics Conversion" and "Other Resin Usage". The former involves merely the shaping or forming of the raw material (either in pellet or sheet form), while the latter involves the incorporation of the raw material into the formulation of the finished product.

TABLE 2

Raw Materials Consumption 1971/72 (tons p.a.)

Classified According to Resin Type:

1.0 Thermoplastics Conversion:

1.1 PVC - Plasticised	1125
1.2 PVC - Rigid	500
1.3 PVC/PVA Copolymers	90
1.4 Polythene - Low Density	1250
1.5 Polythene - High Density	725
1.6 Polypropylene	160
1.7 Styrene polymers	610
1.8 Polymethyl Methacrylate	40

Total 4500

2.0 Other Resin Usage:	
2.1 Oil modified alkyds	1110
2.2 Unsaturated polyesters	550
2.3 Vinyl acetate polymers	580
2.4 Acrylics	25
2.5 Aldehyde resins	140
2.6 Polyurethanes	<u>395</u>
Total	2800
Overall Total	7300 tons p.a.

TABLE 3

Raw Materials Consumption 1971/'72 (tons p.a.)

Classified According to Mode of Usage:

1.0 Thermoplastics Conversion:

1.1 Injection moulding	1350
1.2 Blow moulding	235
1.3 Compression moulding	95
1.4 Extrusion	895
1.5 Film extrusion	1390
1.6 Vacuum and drape forming	425
1.7 Other	<u>110</u>
Total	4500

2.0 Other Resin Usage:

2.1 Paints and surface coatings	1570
2.2 Adhesives	285
2.3 Printing inks	25
2.4 Polyurethane foams	300
2.5 Glass reinforced plastics	150
2.6 Automotive body fillers	<u>400</u>
Total	2800

Overall Total 7300 tons p.a.

2.1 Thermoplastics Conversion

There are some twenty-five organisations in Trinidad involved in this field at present. These range from relatively large concerns engaged in extrusion and moulding processes to small concerns carrying out relatively simple operations such as thermoforming.

A breakdown of the number of organisations involved in each type of conversion is as follows:

Injection moulding	6
Blow moulding	2
Compression moulding	3
Extrusion	5
Film Extrusion	2
Vacuum Forming	5
Others	3

In general the larger organisations are either affiliated to or subsidiaries of larger overseas concerns who in most cases exercise vigilance in respect of process control and quality control of finished products. The same overseas organisations assume a high degree of responsibility with regard to supervisory and operative training, particularly during the introductory stages of new product manufacture.

Products at present manufactured include:

1. Injection moulding: Soft-drink cases, footwear, pipe fittings and various small household items.
2. Blow moulding: Bottles of various sizes.
3. Compression moulding: Gramophone records, artificial teeth.
4. Extrusion: Pipe and conduit, cable sheathing, garden hose.
5. Film Extrusion: Packaging film, tapes.
6. Vacuum Forming: Advertising signs, lighting fixtures, refrigerator components.
7. Other: Ice boxes, picnic coolers, insulation blocks (foamed polystyrene), rope and cordage (twisted yarn).

2.2 Other Resin Usage

There are some 18 organisations employing synthetic resins as ingredients in the manufacture of other materials, as follows:

Paints and surface coatings	4
Adhesives	4
Printing inks	1
Polyurethane foams	3
Glass reinforced plastic	4
Automotive body fillers	2

A plant for the manufacture of bagasse board (a particle board made from the crushed residue from cane sugar refineries) is scheduled to go 'on stream' shortly. It is estimated that consumption of urea-formaldehyde resin will be of the order of 1400 tons per annum within a year.

Products at present manufactured include: paints, varnishes, household and industrial adhesives, printing inks, cushions and mattresses (polyurethane foam), power boats, water tanks, roofing and chairs (G.R.P.) and automotive body fillers. The large demand for these body fillers (estimated at 400 tons per year) reflects perhaps the standard of driving in our country!

An interesting development is the acquisition by a local entrepreneur of the rights to a new process for the rapid manufacture of a variety of materials ranging from foams to moulded solids, by the direct modification of crude oil by undisclosed materials. This possibility cannot however be fully assessed until the assignee has obtained adequate patent cover and is prepared to disclose the process.

3.0

PROBLEMS FACING THE PLASTICS INDUSTRY

The problems hindering the development of the plastics industry in Trinidad and Tobago are by no means unique. Basically they are:

- (1) Small Markets. The domestic market is a little over a million, while the CARIFTA (Caribbean Free Trade Area) market constitutes a further 2 to 3 million. However, the CARIFTA market must be shared with other fast-developing countries such as Jamaica. Entry to South and Central American markets is not possible due to prohibitive tariff charges.
- (2) Low Technical Standard. There is still a great lack of trained personnel for plant operation, and skilled labour, although Trinidad is better placed than other West Indian islands in that there is a well established oil industry.
- (3) Mould Costs. One of the greatest problems facing the plastics processor is the high cost of moulds and dies in relation to the size of the market. Owing to a scarcity of trained toolmakers, almost all machinery and tools are imported. However, among the injection moulders some plans are already being made to exploit the possibility of obtaining moulds on a rental or exchange basis.

4.0

FUTURE PLANS

A survey of the Plastics Industry in Trinidad and Tobago was made in March to July this year by a U.N. expert attached, on a short-term assignment, to the Caribbean Industrial Research Institute. The U.N. expert, Mr. J.E.S. Whitney, made recommendations as to possible avenues of expansion, with particular reference to the indigenous manufacture of synthetic resins.

Mr. Whitney considered the following areas promising and worthy of detailed feasibility studies:-

1. The casting of polymethyl methacrylate sheet.
2. The manufacture of decorative laminates from pre-impregnated paper.
3. The establishment of a synthetic resin plant to produce, batchwise:
 - (a) Oil modified alkyd resins and unsaturated polyester resins.
 - (b) Polymer latices, particularly those based on polyvinylacetate and vinyl acetate copolymers.

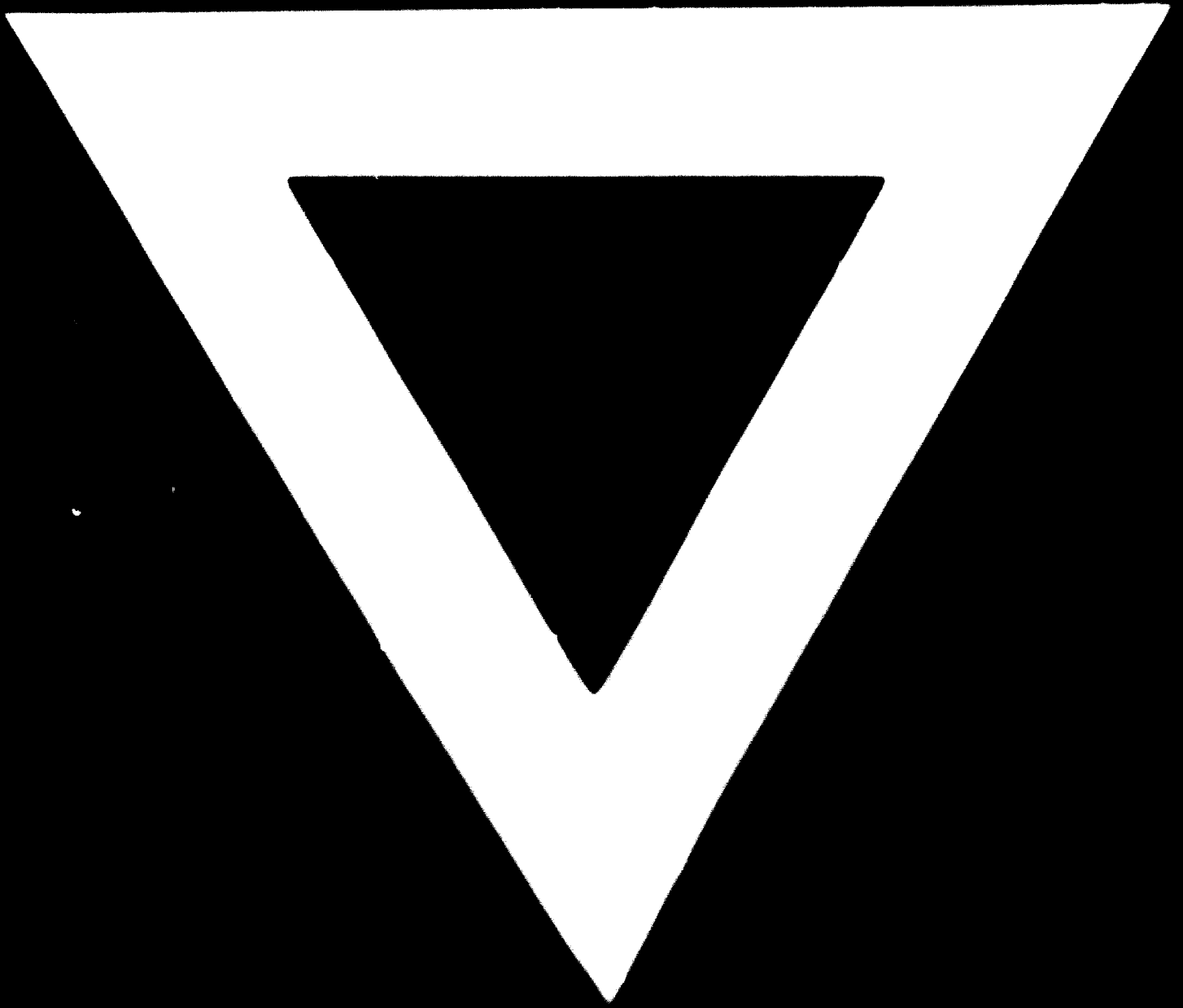
The manufacture of resins such as PVC, polyethylene, polypropylene, phenolics, aldehyde resins etc. is out of the question in terms of the limited markets available and the high capital cost of manufacturing units for these resins.

It can thus be assumed that despite having at hand all the raw materials for the development of a petrochemical-based plastics industry, development will be limited, during this decade at least, to the expansion and diversification of the processing industries, and perhaps the establishment of a plant to manufacture those resins which can be economically produced in a comparatively small, batchwise process.

Reference:

1. "Development of Plastics Industries in Developing Countries".
United Nations, Vienna, 11-15 November 1968. Page 87.





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