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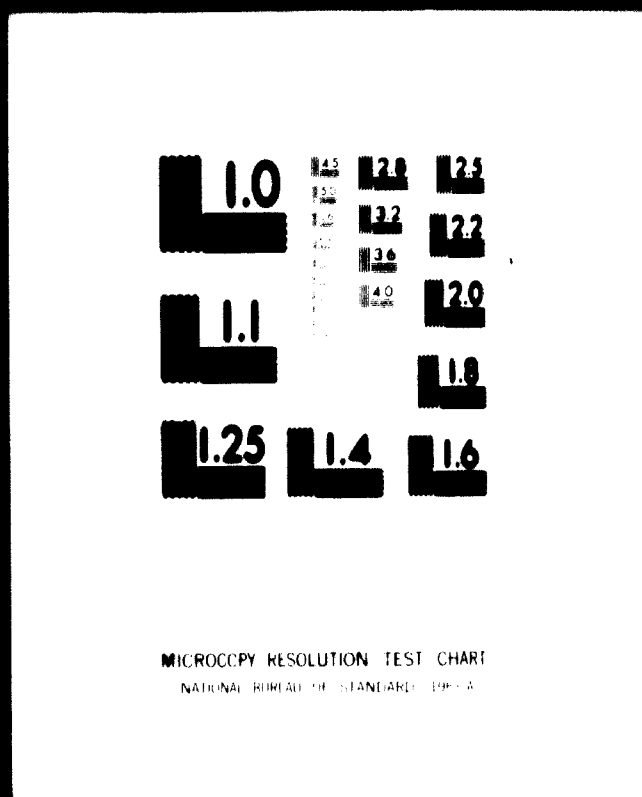
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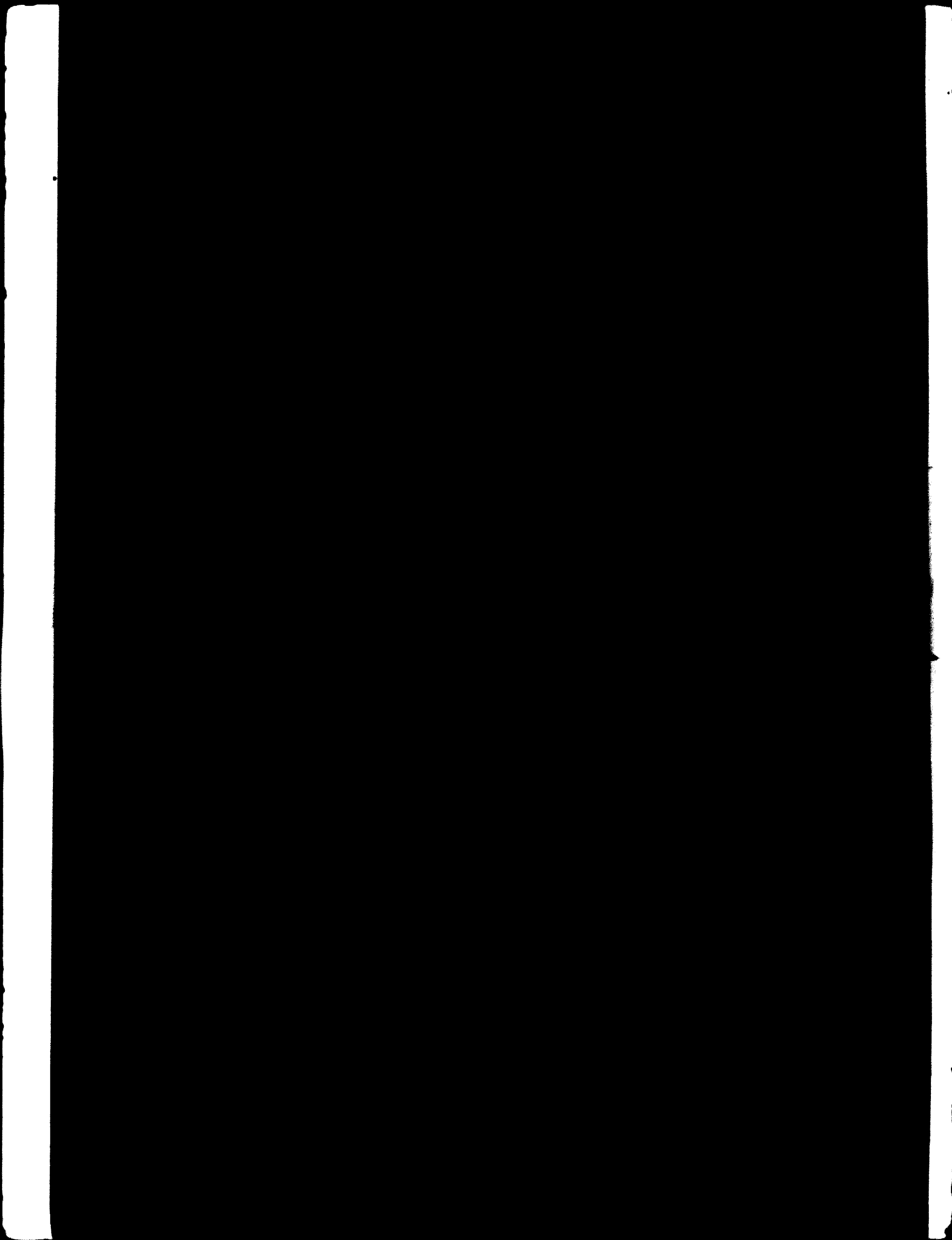
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Sixth Training Programme in Plastic Technology

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**PRESENT STATUS AND FUTURE PLANS FOR THE
DEVELOPMENT OF THE PLASTICS INDUSTRY IN
INDIA^{1/}**

**by
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Since 1947, the plastics industry in India has been steadily growing. During the first ten years of independence, the plastics processing industry manufactured, with imported raw materials, not only consumer goods but also industrial products.

Production of Plastic Raw Materials

In 1957, Polychem Ltd. commenced manufacture of polystyrene, while the urea moulding powder plant of Nuchem Plastics Ltd. went on stream in 1958. A year later, the I.C.I. plant for low density polyethylene commenced operations.

Through a phased programme for raw material production, manufacturing facilities for the various commodity thermoplastics and thermosetting plastics were established in several parts of the country. With the exception of a number of small units, mainly engaged in the production of thermosetting plastics raw materials, all the plastics raw material plants have been set up in collaboration with reputable foreign firms. They are all in the private sector except the Indian Petrochemicals Corporation Ltd. which is a Government of India Undertaking.

Table 1 gives the names of the various Indian firms manufacturing plastics raw materials in the country.

Table 2 gives the installed capacity and production of the different plastics raw materials in the country, for the years 1972, 1973 and 1974.

The Indian Petrochemicals Corporation Ltd. is to produce 30,000 tonnes per year of L.D.P.E. and 30,000 tonnes per year of polypropylene, and operations are expected to commence in 1976-77. Other plastics raw materials to be manufactured in the near future are A.B.S., nylon moulding powder and methyl methacrylate.

Plastics raw materials imported into the country include CAB, CP, CN sheets, PP, PVC sheets, PVC compounds for gramophone records, non-toxic grades of PVC, PE, PP, ABS, SAN, PA and PC. There is an export ban on most of the plastics raw materials. This is an encouragement to the plastics processing industry which is further encouraged by the ban on imports of almost all finished plastics goods and products.

Table 1

<u>Indian Firm</u>	<u>Foreign Collaborator</u>	<u>Plastics Raw Material</u>
1. East Anglia Plastics (India) Ltd.	East Anglia (U.K.)	C... moulding powder
2. Polychem Ltd.	Dow (U.S.A.)	Polystyrene
3. Hindustan Polymers Ltd.	B.K. Plastics (U.K.)	Polystyrene
4. Alkali + Chemical Corporation of India Ltd.	I.C.I. (U.K.)	L.D.P.E.
5. Union Carbide of India Ltd.	Union Carbide (U.S.A.)	L.D.P.E.
6. Polyolefins Industries Ltd.	Hoechst (W.Germany)	H.D.P.E.
7. Calico Mills Plastics Divn.	Dynamit Nobel (W.Germany)	P.V.C.
8. Chemicals and Plastics India Ltd.	P.F. Goodrich (U.S.A.)	P.V.C.
9. National Organic Chemical Industries Ltd.	Shell International	P.V.C.
10. Plastic Resins and Chemicals Ltd.	Kureha (Japan)	P.V.C.
11. Shariram Chemical Industries	Shinetsu (Japan)	P.V.C.
12. Indo-Nippon Chemical Co. Ltd.	Nichiman (Japan)	Plasticisers
13. Herdillia Chemicals Ltd.	Distillers	Plasticisers
14. Bakelite Lylam Ltd.	Bakelite Dynolite (UK)	P.F. moulding powders and U.P. resins
15. Machem Plastics Ltd.	E.I.P. (U.K.)	U.F. and M.F. resins and moulding powders
16. Indian Petrochemicals Corp. Ltd.	A.T.O. (France)	L.D.P.E.
17. Indian Petrochemicals Corp. Ltd.	Montedison (Italy)	Polypropylene

Table 2

<u>Plastics Material</u>	<u>No. of units</u>	<u>Capacity</u>	<u>Production in Tonnes in</u>		
			<u>1972</u>	<u>1973</u>	<u>1974</u>
1. C.A. moulding powder	2	7,200	1,353	1,507	1,366
2. Polystyrene	2	17,500	13,399	13,759	9,343
3. L.D.P.E.	2	19,000	27,941	23,127	26,546
4. H.D.P.E.	1	20,000	21,000	23,001	24,489
5. P.V.C.	5	64,700	46,335	49,267	47,432
6. P.F. moulding powder	12	7,200	5,405	6,500	6,000
P.F. laminates	5	7,444	6,521	7,700	7,500
7. U.F. resins	3	7,300	4,150	4,900	4,500
U.F. and H.F. moulding powders	4	3,350	1,977	2,175	1,780
8. Polyester resins	3	1,500	750	1,000	800

Manufacture of Plastics Processing Equipment and Machinery

Table 3 below shows the plastics processing machinery made in the country with foreign collaboration.

Table 3

<u>Indian Firm</u>	<u>Foreign Collaborator</u>	<u>Range of Machinery</u>
1. Mueben Plastics Ltd.	Daniels (U.K.)	Compression Moulding Presses
2. Engel India Machines + Tools	Engels (Austria)	Injection Moulding Machines
3. R.H. Windsor (India Ltd.)	G.K.H. Windsor (U.K.)	Injection Moulding Machines, Extruders
4. SLM Maneklar Industries Ltd.	Kautex (W. Germany)	Blow Moulding machines

Besides the above several firms have commenced the manufacture of plastics processing machinery and equipment with indigenous know-how. These include compression moulding presses, injection moulding machines, extruders, blow moulding machines, vacuum forming machines, welding equipment, etc.

The Plastics Processing Industry

The plastics processing industry has had considerable assistance from the Government to facilitate rapid growth. Firstly, the ban on import of finished plastics products has given the industry a virtually protected home market. There are about 5,000 plastics processing units spread all over the country, of which more than 30% are in the small scale sector, employing a total of over 350,000 workers. Certain items such as bottle caps, buttons, polyester sheets for buttons, spectacle frames, PVC footwear, and blow moulded containers are exclusively reserved for manufacture by the small scale sector.

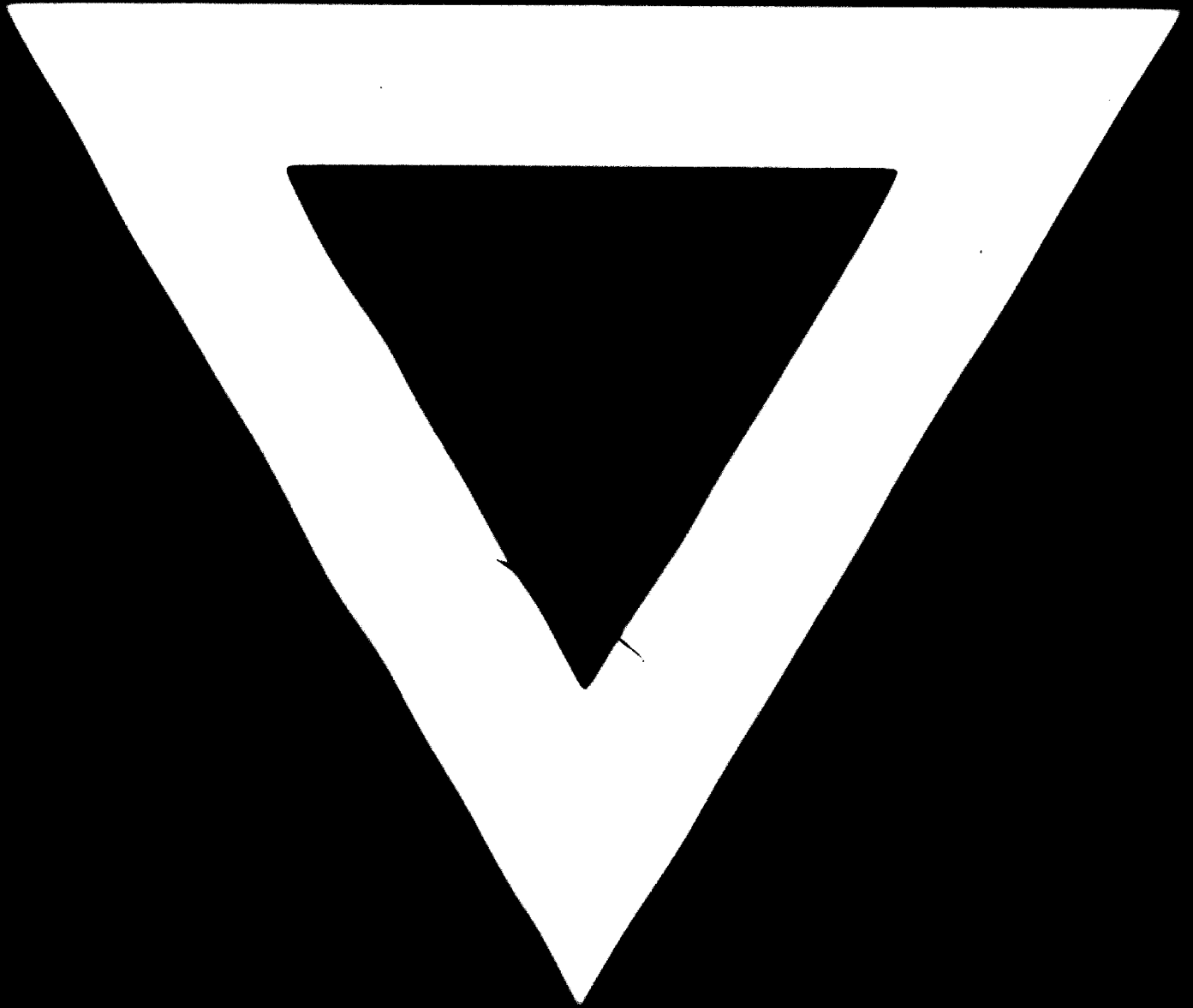
Exports of Plastics Products

The Plastics and Linoleums Export Promotion Council, a Government of India subsidised organization, promotes the export of plastics products. The main products which have been exported to more than 70 countries include spectacle frames, gramophone records, imitation jewellery, PE film and woven sacks, PVC leathercloth, PVC sheeting and PVC pipes.

Education and Training in Plastics

While educational facilities in plastics exist at Bombay, Calcutta, Kanpur and Madras for graduate and post graduate courses in the chemistry, physics and technology of plastics, the plastics processing industry could not expand adequately for the lack of adequate mould manufacturing capability. In 1968, UNDP assisted the Government of India in establishing the Central Institute of Plastics Engineering and Tools at Guindy, Madras, to train mould designers, mould makers, mould polishers and tool room supporting personnel, thus filling a long felt need. (Details of training courses offered at CIPET Madras are given in the brochure attached.)

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