

Manufacturing, Processing and Application of Polymers

(Fabricating and Processing Molding, Modified Natural Products, Synthetic Condensation Products, Synthetic Addition Products, Powder Technology for Coating of Plastics, Acrylic and Polyurethane Dispersions in Industrial Coatings for Plastics)

Introduction

Polymers are the most rapidly growing sector of the materials industry. No wonder polymers are found in everything from compact discs to high tech aerospace applications. The Indian plastic and polymer industry has taken great strides. In the last few decades, the industry has grown to the status of a leading sector in the country with a sizable base. The material is gaining notable importance in different spheres of activity and the per capita consumption is increasing at a fast pace. Continuous advancements and developments in polymer technology, processing machineries, expertise and cost effective manufacturing is fast replacing the typical materials in different segments with plastics.

Monomers and polymers are of little or no practical use until the raw product from the manufacturing process been transformed by more or less standardized fabrication and processing techniques into useful forms. There are different methods of processing of polymers for solid; molding, extrusion, calendaring, sheet forming, laminating and impregnating and for liquids and melts; coating, expanding or foaming, casting, spinning, laminating and impregnating. Plastics are divided into thermosetting and thermoplastic materials. Compression and transfer molding are the two main methods used to produce molded parts from thermosetting plastics; however, injection molding is under development and may become important in future.

Plastic foams are from a wide variety of polymers have a wide range of applications and are made by a variety of methods depending upon the polymer and the application. Elastomers are indispensable to our modern civilization, without them two of largest industries; transportation and electrical, would never have attained their present state of development. The reason why plastics are popular is that they may offer such advantages as transparency, self lubrication, light weight, flexibility, economy in fabricating and decorating. Properties of plastics can be modified through the use of fillers, reinforcing agents and chemical additives. Polymer Energy system is an award winning, innovative, proprietary process to convert waste plastics into renewable energy. On the basis of value added, Indian share of plastic products industry is about 0.5% of national GDP.

Polymers are classified into thermoplastics and thermosettings. Thermoplastics include elastomers (unvulcanised), polyvinyl chloride (PVC), polyethylene (PE), polystyrene (PS), polyurethane (PU) and other resins. Thermosettings include elastomers (vulcanised), polyethylene (crosslinked), phenolics, alkyds, polyesters.

The industry has expanded along with expansion of diverse applications areas such as packaging, extrusions, blow mouldings and industrial mouldings for automobiles, telecommunications, white goods. User segments include electrical appliances, domesticware, leatherite, decorative laminates, fittings and fixtures, construction industry (extrusions), automobile components, machinery and equipment, water tanks, pipes and fittings, drink bottles,

medical appliances, weather protection. The opportunities are also opening up with the expansion and sophistication of food processing, automobiles, entertainment electronics and appliances. Besides these, industry's contributions have been vital in areas of rural electrification, telecommunication, horticulture, medicare, apart from a perceptible change in living styles and standards.

Polymers have found uses in all spheres of life with demand for better materials, greater functional utility, more economical packaging and versatile and durable all-weather products.

Illustratively, the hilly regions of east India, or the drought prone districts of Rajasthan, Gujarat and Tamil Nadu demand moulded tanks in thousands. The horticultural products of Himachal Pradesh need plastic crates for packing apples and pears while they do not want their forests denuded by the use of wood in crates. Plastics have also penetrated into agriculture through green houses and PVC pipes. Fertilizer and cement industries are crying for substitution of the conventional jute bags.

Some of the fundamentals of the book are modified natural products, synthetic condensation products, melamine formaldehyde resins, aniline formaldehyde resins, miscellaneous amino plastics, sulfonamide formaldehyde resins, polyesters, saturated polyesters, linear polycarbonates, unsaturated polyesters, polymerized oils, synthetic addition products, aliphatic hydrocarbons and derivatives polyethylene, powder technology for coating of plastics, acrylic and polyurethane dispersions in industrial coatings for plastics, water borne coatings

for plastics adhesion of water borne coatings on plastics, fabricating and processing, cold bending, hot bending, stretch forming, plug and ring forming, slip forming, drawing die pressing, roto forming, veneering, post forming, fluid pressure forming, vacuum forming methods, pressure forming methods, laminating and impregnating etc.

Three factors are essential for any successful processing of polymers, namely materials, machinery and process control. Polymers have importance in manufacturing of various domestic and industrial products. This book is an invaluable resource to new entrepreneurs, technocrats, researchers, professionals etc.

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- *We empower our customers with the prerequisite know-how to take sound business decisions*
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- *We serve a wide array of customers , from individual entrepreneurs to Corporations and Foreign Investors*
- *We use authentic & reliable sources to ensure business precision*



Our Approach

Requirement collection



Thorough analysis of the project



Economic feasibility study of the Project



Market potential survey/research



Report Compilation

Who do we serve?

- *Public-sector Companies*
- *Corporates*
- *Government Undertakings*
- *Individual Entrepreneurs*
- *NRI's*
- *Foreign Investors*
- *Non-profit Organizations, NBFC's*
- *Educational Institutions*
- *Embassies & Consulates*
- *Consultancies*
- *Industry / trade associations*

Sectors We Cover

- *Ayurvedic And Herbal Medicines, Herbal Cosmetics*
- *Alcoholic And Non Alcoholic Beverages, Drinks*
- *Adhesives, Industrial Adhesive, Sealants, Glues, Gum & Resin*
- *Activated Carbon & Activated Charcoal*
- *Aluminium And Aluminium Extrusion Profiles & Sections,*
- *Bio-fertilizers And Biotechnology*
- *Breakfast Snacks And Cereal Food*
- *Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling*

Sectors We Cover *Cont...*

- *Bamboo And Cane Based Projects*
- *Building Materials And Construction Projects*
- *Biodegradable & Bioplastic Based Projects*
- *Chemicals (Organic And Inorganic)*
- *Confectionery, Bakery/Baking And Other Food*
- *Cereal Processing*
- *Coconut And Coconut Based Products*
- *Cold Storage For Fruits & Vegetables*
- *Coal & Coal Byproduct*

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- *Dairy/Milk Processing*
- *Disinfectants, Pesticides, Insecticides, Mosquito Repellents,*
- *Electrical, Electronic And Computer based Projects*
- *Essential Oils, Oils & Fats And Allied*
- *Engineering Goods*
- *Fibre Glass & Float Glass*
- *Fast Moving Consumer Goods*
- *Food, Bakery, Agro Processing*

Sectors We Cover *Cont...*

- *Fruits & Vegetables Processing*
- *Ferro Alloys Based Projects*
- *Fertilizers & Biofertilizers*
- *Ginger & Ginger Based Projects*
- *Herbs And Medicinal Cultivation And Jatropha (Biofuel)*
- *Hotel & Hospitality Projects*
- *Hospital Based Projects*
- *Herbal Based Projects*
- *Inks, Stationery And Export Industries*

Sectors We Cover *Cont...*

- *Infrastructure Projects*
- *Jute & Jute Based Products*
- *Leather And Leather Based Projects*
- *Leisure & Entertainment Based Projects*
- *Livestock Farming Of Birds & Animals*
- *Minerals And Minerals*
- *Maize Processing(Wet Milling) & Maize Based Projects*
- *Medical Plastics, Disposables Plastic Syringe, Blood Bags*
- *Organic Farming, Neem Products Etc.*

Sectors We Cover *Cont...*

- *Paints, Pigments, Varnish & Lacquer*
- *Paper And Paper Board, Paper Recycling Projects*
- *Printing Inks*
- *Packaging Based Projects*
- *Perfumes, Cosmetics And Flavours*
- *Power Generation Based Projects & Renewable Energy Based Projects*
- *Pharmaceuticals And Drugs*
- *Plantations, Farming And Cultivations*
- *Plastic Film, Plastic Waste And Plastic Compounds*
- *Plastic, PVC, PET, HDPE, LDPE Etc.*

Sectors We Cover *Cont...*

- *Potato And Potato Based Projects*
- *Printing And Packaging*
- *Real Estate, Leisure And Hospitality*
- *Rubber And Rubber Products*
- *Soaps And Detergents*
- *Stationary Products*
- *Spices And Snacks Food*
- *Steel & Steel Products*
- *Textile Auxiliary And Chemicals*

Sectors We Cover *Cont...*

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- *Textiles And Readymade Garments*
- *Waste Management & Recycling*
- *Wood & Wood Products*
- *Water Industry(Packaged Drinking Water & Mineral Water)*
- *Wire & Cable*

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