

The Complete Technology Book on Polymers with Processing & Applications

Author: NIIR Board of Consultants & Engineers

Format: Paperback

ISBN: 8178330105

Code: NI181

Pages: 560

Price: Rs. 1,100.00 US\$ 125.00

Publisher: Asia Pacific Business Press Inc.

Usually ships within **5** days

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.

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.

Contents

1. INTRODUCTION

VIEWPOINT OF THE CONSUMER
VIEWPOINT OF THE INDUSTRIAL DESIGNER
VIEWPOINT OF THE FABRICATOR
VIEWPOINT OF THE PHYSICAL CHEMIST
VIEWPOINT OF THE ORGANIC CHEMIST
VIEWPOINT OF THE CHEMICAL ENGINEER
VIEWPOINT OF THE ECONOMIST

2. MODIFIED NATURAL PRODUCTS

CUPRAMMONIUM RAYON
VISCOSE RAYON
REGENERATED CELLULOSE FILM
CELLULOSIC DERIVATIVES
Cellulose Esters
Cellulose Nitrate
CELLULOSE ACETATE
CELLULOSE PROPIONATE
HIGHER CELLULOSE ESTERS
MIXED ESTERS OF CELLULOSE
CELLULOSE ETHERS
METHYL CELLULOSE
ETHYL CELLULOSE
CARBOXYMETHYL CELLULOSE
HYDROXYETHYL CELLULOSE
CYANOETHYL CELLULOSE

3. SYNTHETIC CONDENSATION PRODUCTS

PHENOPLASTS
Other Aldehydes
OTHER PHENOLS
FILLERS
OIL-SOLUBLE RESINS
CAST RESINS
MANUFACTURE
APPLICATIONS
Urea-Formaldehyde Resins
MELAMINE-FORMALDEHYDE RESINS
ANILINE-FORMALDEHYDE RESINS
MISCELLANEOUS AMINOPLASTS
SULFONAMIDE-FORMALDEHYDE RESINS
POLYESTERS
Saturated Polyesters
Linear Polycarbonates
Unsaturated Polyesters
Polymerized Oils
Alkyd Resins
Unsaturated Polyester Resins
LINEAR POLYAMIDES

POLYURETHANES

SILICONES

POLYOXYMETHYLENES

POLYOXYETHYLENES

EPOXY RESINS

THIOPLASTS

FURAN RESINS

4. SYNTHETIC ADDITION PRODUCTS

ALIPHATIC HYDROCARBONS AND DERIVATIVES POLYETHYLENE

High-Pressure Process

Low-Pressure Process

Irradiated Polyethylene

Chlorosulfonated Polyethylene

POLYTETRAFLUOROETHYLENE

POLYCHLOROTRIFLUOROETHYLENE

POLYPROPYLENE

POLYBUTENES

Butyl Rubber

POLYSULFONES

POLY(VINYL ACETATE)

POLY(VINYL ALCOHOL)

POLY(VINYL CETALS)

POLY(VINYL AND VINYLIDENE ETHERS)

POLY (VINYL KETONES AND ALDEHYDES)

POLY(VINYLIDENE CHLORIDE)

VINYLIDENE CHLORIDE COPOLYMERS

POLYACRYLONITRILE

Vinylidene Cyanide

ALIPHATIC DIENES

Polyisoprene

POLYCHLOROPRENE

POLYBUTADIENE

Butadiene-Acrylonitril Copolymers

Butadiene-Styrene Copolymers

AROMATIC VINYL COMPOUNDS

Polystyrene

POLY(A-METHYL STYRENE)

POLY (VINYL TOLUENES)

POLY(DIVINYL BENZENES)

HETEROCYCLIC VINYL COMPOUNDS

poly(N-vinyl carbazole)

POLY(N-VINYL PYRROLIDONE)

POLY(VINYL PYRIDINES)

CYCLIC UNSATURATED COMPOUNDS

Coumarone-Indene Resins

POLYCYCLOPENTADIENE

POLYTERPENES

5. POWDER TECHNOLOGY FOR COATING OF PLASTICS

WHY POWDER COAT PLASTICS

EFFECT OF COSMIC RADIATION

RESISTANCE TO MECHANICAL WEAR

ELECTRICAL PROCESSING CHARACTERISTICS

IMPROVING WEATHER RESISTANCE

EXTERNAL POWDER DRAIN TREATMENT
PRETREATMENT OF PLASTICS
ELECTRICAL CHARACTERISTICS
6. ACRYLIC AND POLYURETHANE DISPERSIONS IN INDUSTRIAL COATINGS FOR PLASTICS
INTRODUCTION
PLASTICS NEED COATINGS
PROBLEMS WHEN PAINTING PLASTICS
WATER-BORNE COATINGS FOR PLASTICS
ADHESION OF WATER-BORNE COATINGS ON PLASTICS
HARDNESS
WATER RESISTANCE
CHEMICAL AND SOLVENT RESISTANCES
SELECTION OF PRODUCTS FOR WATER-BASED PLASTIC COATINGS
CONCLUSIONS
7. FABRICATING AND PROCESSING
MOLDING
Cold Compression Molding
Hot Compression Molding
Transfer Molding
Injection Molding
Jet Molding
EXTRUDING
CALENDERING
SKIVING
SHEET FORMING
ATMOSPHERIC PRESSURE FORMING
Cold Bending
Hot Bending
Stretch Forming
Plug-and-Ring Forming
Slip Forming
Drawing
Die Pressing
Rotoforming
Veneering
Postforming
FLUID-PRESSURE FORMING
Vacuum-Forming Methods
Pressure-Forming Methods
LAMINATING AND IMPREGNATING
Cellular Laminates
COATING
Surface Coatings
Strippable Coatings
EXPANDING
CASTING AND EMBEDDING
SPINNING
FINISHING OF PLASTICS
8. APPLICATION
FIBERS
PLASTICS
Constructional Uses
Thermal, Electrical, and Optical Uses

Ion Exchange
Adhesives, Coatings, and Films
ADHESIVES
COATINGS
FILMS
ELASTOMERS

About NIIR

NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

NIIR PROJECT CONSULTANCY SERVICES , 106-E, Kamla Nagar, New Delhi-110007, India. **Email:** npcs.india@gmail.com **Website:** NIIR.org

Mon, 20 May 2019 06:46:46 +0530