

Entrepreneur India

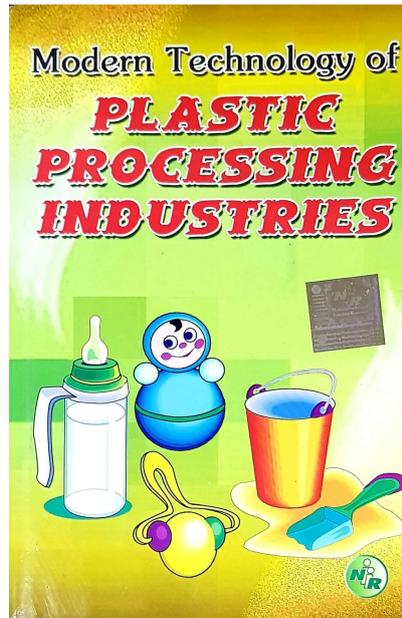
106-E, Kamla Nagar, New Delhi-110007, India.

Tel: 91-11-23843955, +91 9097075054

Mobile: +91-9097075054

Email: npcs.ei@gmail.com, info@entrepreneurindia.co

Website: www.entrepreneurIndia.co



Modern Technology of Plastic Processing Industries (2nd Edition)

Code	NI22
Format	paperback
Indian Price	₹975
US Price	\$100
Pages	592
ISBN	8186623426
Publisher	National Institute of Industrial Research

Description

Plastics are contemporary, synthetic materials. Plastics are oil and gas based, and consumes less than four per cent of our oil and gas reserves. Plastic in fact saves the energy it takes less energy to convert into plastic from raw materials. Throughout their whole life circle one-third less energy needs than making paper bags. Without plastic, whole packaging would take almost double energy by around 160 percent. The better-quality properties of plastics such as sanitized or germ free barrier properties, light weight, and durability contribute appreciably to our health and quality to way of life. The Plastic industry has been witnessing a continuous increase in demand from a long time attracting many towards it. To all those who are looking forward for a proper understanding of technology and methodology used in the plastic industries so that they could penetrate into plastics industries with a consideration of the current industry trend then this book provides you about certain very essential information about Plastic. PVC can be processed by all the conventional conversion processes as used for other thermoplastics but with some modifications. This book covers an intensive study of Current Trends in Conducting Polymers with a significant and detail explanation of thermosetting, thermoplastic material and products environment health and the future prospects.

The content of the book includes information about plastic and allied products equipped with latest technology. It also includes comprehensive information on the development of the sector and manufacturing process. The several chapters of the book contain information about: Processing of PVC, Applications of PVC and so on. The book also has chapter that will provide you with some very interesting, feasible and profitable plastic project profiles that will act as guide in proper understanding and analysis of the sector. Recent Developments in Plastics Extrusion and Environment Health and Future Prospects, Constructive use of HDPE, The Processing of Fibre Re-inforced Thermo-plastics Using Co-Rotating Twin Screw Extruders, Economical Film Extrusions with Modular Systems these are few chapters that are very informational and will help you in deep penetration of the industry. Along with these feature the book also encloses a directory section which list all major manufacturers of plastic processing machinery and raw material suppliers.

Content

1. Current Trends in Conducting Polymers

Introduction

Synthesis and Properties

Technological Applications

Electromagnetic Shielding Applications

Electrooptical Display Devices
Microelectronic Devices
Photovoltaic Devices
Sensors
Scope of Conducting polymers

2. Thermosetting Plastics

Introduction
Kinds of Thermoset Plastics
Phenolic Resins
Resols and Novolaks
Acid and Base Catalysts
Solubility
Manufacturing of Phenolic Resins
Process (Novolak)
Application of Phenolic Resins
Brakelinings
Grinding Wheels (Abrasives)
Sand core bonding (Foundry)
Shellmoulds for metal castings
Wood waste boards
Impregnation
Adhesives (Plywood Glues)
Surface Coatings
Oil Varnishes
Lamp capping cement
Rubber Based Adhesives
Rubber Compounds
Tackifier
Aminoresins
Chemistry of the interaction of Urea and Formaldehyde
Methylol Ureas
Monomethylol Urea
Dimethylol Urea
U.F. Resin
Melamine-Formaldehyde Resin
Method of Manufacture
Applications of Aminoplastic Mouldings
Other Industrial Applications
The Laminating Process

Melamine Resin Adhesives
Use of Wet Strength Paper
Coating Applications
The preparation of Butylated Amino resins

3. Indian plastic industry : Present Status and Future Prospects

Market perceptions
Indian plastic industry's growth
Choice of polymers
Small market and large capacity
Factors governing the performance of Indian polymer plastic Industry
The Pragmatic policy
Government's responsibility

4. Compounding of PVC

Introduction
Elements of Compounding
Methods of Compounding
Intensive Dry Mixers
Internal Intensive Batch Mixers
Continuous Mixer
Two-Roll Mills
Single-Screw Extruders
Compounder-Extruder
Twin-Screw Extruder
Custom compounding for special properties
General guidelines for PVC formulations for common product

5. Processing of PVC

Introduction
PVC Resins
Molecular Weight
Injection Moulding
Additives for improving processing
Low Shear Horizontal Mixers (Ribbon Blenders)
Higher Shear Vertical Non-fluxing Mixer
Dry Blend Properties

Low Shear and High Shear Mixing in Horizontal,
Jacketed Cylindrical Blenders
Hot Melt Compounding
Two Stage (Farrel) Continuous High Intensity Fluxing Mixers
Compounding Lines-Batch Type
Suggested K-Value of PVC Resins
Influence of Formulation on Processing Behaviour
Relation of Polymer K-Values with Threshold Temperature

6. Applications of PVC

World of PVC Applications

Rigid PVC Pipes

Advantages of Rigid PVC Pipes

Chemical Resistance

Flow through Rigid PVC Pipes

Flow or Friction Losses

Manufacturing of PVC Sheet

Extrusion PVC Sheets

Extrusion Blowing of PVC Sheets

Calandrette Process

Processing of Sheets by Forming

Requirements of PVC Sheets

Blister Packaging

Vacuum Formed Products

Skin Packaging

Typical Blister Packaging Applications

Non-Packaging Application

Tropicalised Blister Pack-A New Concept

Rigid PVC Free Foam Board

PVC Integral Foam Sheets

Blow Moulded Bottles and Containers

Pet vis-a-vis PVC Stretched Bottles

Blow Moulding of PVC Bottles

Injection Blow Moulding

Cushioned Vinyl Flooring

The Screen Coating System : Advantages

One Pass Production

Double-sided Coating of Open-Weave Fabrics

PVC in Medical Application

Moulding of PVC Footwear

7. Improving Moulding Through Melt-flow Oscillation

Orientation effects in molding technology : Orientation versus relaxation

How Does Rheomolding Work?

Melt-flow oscillation improves properties

8. Basic Information and Identification of Plastics

Development of Plastic Materials

9. Classification of Plastics

Thermoplastic Resins

Thermosetting Resins

Identification of Plastics

10. Compounding Resins

Design and cost of a compound

Fillers

Plasticizers

Colourants

Role of Plastics

More Resins for Packaging

11. Common Plastic Resins

Production of PVC (Poly Vinyl Chloride)

Manufacturing Process of PVC

PVC Films

Applications of PVC Films

PVC Bottles

Rigid PVC Pipes

Low Density Polyethylene (LDPE)

Polyethylene Production from Petroleum/Natural Gas

LDPE Resins

Linear Low Density Polyethylene
Retrofitting LDPE Plant
Comparison of LLDPE with Conventional LDPE
Applications of LLDPE
High Density Polyethylene
Injection Moulding
Blow Moulding
Polypropylene
Polyster
Polystyrene
Injection Moulding
Compression Moulding
Transfer Moulding
Jet Moulding
Blow Moulding
Injection Blow Moulding
Reinforced Moulding
Flat Sheet and Film Extrusion

Characteristics of Polystyrene
Nylon
Polyurethane
Phenol Formaldehyde Resins
Epoxy Resins

12. Decoration of Plastics

Dyeing
Electro-Plating
Flock Coating
Hot-Stamping
In Mould Decoration
Painting
Printing
Vacuum Metallizing

13. Plastic Applications

Uses in Agriculture
Automobile
Building

Defence
Medical
Textile Industry
Packaging
Chemical Industry
Main Uses of Plastics in Agriculture Polyethylene

14. Plastic Waste and its Reprocessing

Definitions Regarding Plastic Waste
Generation of Industrial Plastic Wastes

15. Plastic Welding and Sealing

Introduction for Plastic Welding
Introduction for Heat Sealing
Heat Welding
Hot Gas Welding
Heated Tool Welding
Induction Welding
Spin Welding
Advantages
Disadvantages
Ultra Sonic Welding Characteristics of Plastics

16. Plastic Technology

Thermoplastic Material
Thermosetting Plastics
Plastic Foam
Compounding of Plastics

17. Plastic Products

Introduction
Material Considerations
Design Considerations
Viscoelasticity
Formation of Crack
Reinforcements

Characteristics of Plastics
Shrinkage
General Design Principles

18. Recent Developments in Plastics Extrusion

Blown Films
Haul-Off
Compounding and Masterbatch
Multilayers Co-Extruded Film
Blown Coextrusion
Equipment for Blown Coex Films

19. Polymer Powders and Coatings

Introduction
Coating Powders
Characteristics of Thermosetting Powder Coatings
Powder Coating Machinery Suppliers
Electrostatic Powder Suppliers

20. Roto Moulding and Cost of Polymers

21. Polymer Blend, Fibre and composite

Polymer Blends
Composites
Laminar Composites
Particulate Composites
Fibres

22. Polypropylene applications in automobiles

Plastics Consumption

23. Recovery of Chemicals from Plastic Waste

Plastic Degradation
Modes of Polymer Degradation
Thermal Degradation
Mechanical Degradation

Photo Degradation
Bio-Degradation
Chemical Degradation
Solvolysis
Mineral Oil as Suspending Medium
Glycerolysis of Waste
ICI, Mitsubishi Rayon Link for Acrylic Recycling Techniques

24. Environment Health and Future Prospects

Hazardous Effects of Plastics
Air Pollution
Safety Measures
Product Safety
Future Prospects
Improving Working Conditions and the Environment
Technology Transfer and Development

25. Recycling Polyester Resins

Pet and Apet
RPET
PETG
CPET
Chemical Reduction
Process Route of Michigan Technology University

26. Constructive use of HDPE

Characteristics
HDPE Pipe System
Joining Techniques
HDPE Pipes Versus Other Materials
Submarine Pipelines
Relining-New Pipes in Old
Sewer Pipes
Slurry Transportation
Irrigation
Domestics Gas Distribution
Chemical Process Piping

27. Extrusion of Cast Film, Thermoforming Film and Sheet

Features and Applications

Thermoforming Film

Production System and Line Concepts

Thermoforming Film Line

Sheet Extrusion Lines

Improvements in Machine Sectors

Re-Use of Extrusion Scrap

Automation

Development Trends

28. The Processing of Fiber Re-inforced Thermoplastics Using Co-Rotating Twin Screw Extruders

Introduction

Experimental Apparatus and Procedure

Results and Discussion

29. Economical Film Extrusions with Modular Systems

Modular Design Concept from Resin Feeding to the Win

Engineering Innovations for blown film systems

Gravimetric resin feeding systems

Extruders with a forced conveying feed section

Blown film dies further Improved

Automatic die also for barrier films

Automated downstream equipment

Flexibly expandable : modularly designed oscillating haul

Modular winders for all types of film

Modular automation provides flexibility for

both film manufacturers and users

Remote diagnosis enhances system availability

Information system completes the automation concept

Modular automated extrusion lines enhance productivity

30. Appendices

- I. Formula for Calculations
- II. Pigment Formulations for Dry Colouring Unplasticized Plastic
- III. Recommended Use of Lubricants
- IV. General Properties of Plastics
- V. BIS Specifications on Plastics
- VI. Drilling Thermoplastics
- VII. Turning Characteristics of Thermoplastics
- VIII. Machining of Plastic Sawing of Plastics
- IX. A Genral Guide to Suitable Speeds and Feeds
- 31. Profiles

- 32. Raw Material Suppliers for Plastic and Plastic Products
- 33. MANUFACTURERS OF PLASTIC PROCESSING MACHINERY

About Niir

NIIR Project Consultancy Services (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. Its various services are: Pre-feasibility study, New Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Preparation of Project Profiles and Pre-Investment and Pre-Feasibility Studies, Market Surveys and Studies, Preparation of Techno-Economic Feasibility Reports, Identification and Selection of Plant and Machinery, Manufacturing Process and/or Equipment required, General Guidance, Technical and Commercial Counseling for setting up new industrial projects and industry. NPCS also publishes various technology books, directories, databases, detailed project reports, market survey reports on various industries and profit making business. Besides being used by manufacturers, industrialists, and entrepreneurs, our publications are also used by Indian and overseas professionals including project engineers, information services bureaus, consultants and consultancy firms as one of the inputs in their research.