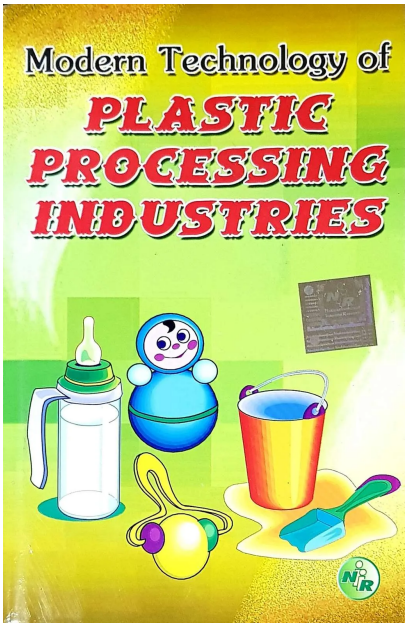
Entrepreneur India

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-in forced 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

Introuction
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 Cylinderical Blenders
Hot Melt Compounding
Two Stage (Farrel) Continous 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 Polythylene
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 Poloymer 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
Jointing 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 Thermo-plastics 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 hau
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.