

Modern Technology of Paints, Varnishes & Lacquers (2nd Edition)

Author: NIIR Board

Format: Paperback

ISBN: 8178330881

Code: NI66

Pages: 682

Price: Rs. 1,075.00 **US\$** 125.00

Publisher: Asia Pacific Business Press Inc.

Usually ships within **5** days

Surface coating industry is one of the most popular industries. Paints, varnishes and lacquers industry is gaining ground at a rapid pace in modern time accompanied with closed advance in surface coating technology. They are formulated for specific purposes: outside house paints and exterior varnishes are intended to give good service when exposed to weathering; interior wall paints are formulated to give excellent coverage and good wash ability; and lacquers are formulated for rapid drying. Varnish is one of the important parts of surface coating industry. Varnish is a transparent, hard, protective finish or film primarily used in wood finishing but also for other materials. They are used to change the surface gloss, making the surface more matte or higher gloss, or to provide the various areas of a painting with a more unified finish. Varnishes are also applied over wood stains as a final step to achieve a film for gloss and protection. Some products are marketed as a combined stain and varnish. Paint is any liquid, liquefiable, or mastic composition which after application to a substrate in a thin layer is converted to an opaque solid film. It is most commonly used to protect, colour or provide texture to objects. The paint industry volume in India has been growing at 15% per annum for quite some years now. As far as the future growth prospects are concerned, the industry is expected to grow at 12 to 13% annually over the next five years. The technology is required to produce different type of new paints and varnishes based on different type of uses. The paint and coatings industry plays an integral role in sustainability; coatings protect the objects we depend on every day, preserve our possessions, so they last longer and provide for a sustainable future. They are indispensable products that extend the useful life of everyday objects by acting as a protective barrier. These newer products have enabled paint manufacturers to improve the performance properties of their paints and coatings and so satisfy the more stringent requirements of our modern industrial society. The future for industrial paints, varnishes and lacquers is bright. In the next few years its value will go up gradually in line with the global trend.

The major contents of the book are application of paints, fundamentals of paint, varnishes and lacquers, manufacturing of different type of paints, paint formulation, pigment dispersion, emulsion paints, and so on. The book deals with fundamentals of paints, Varnishes and lacquers, pigments, Oils used in paints and varnishes, solvents, dryers, plasticizers, additives for surface coating, various types of paint manufacturing etc. The book is very useful for new entrepreneurs, existing units, technocrats, technical institutions and for those who wants to diversify in the field of paints manufacturing.

Contents

1. Application of Paints
Paint System Specification

Preparation of Paints
Establishment of the paint Manufacture Unit
Pigment
White Pigments
Black Pigments
Red Pigment
Green Pigment
Blue Pigment
Synthetic Ultramarine Blue
Yellow Pigment
Drying Oils & Driers
Drying Oils
Linsed Oil
Castro Oil & Dehydrated Castro Oil
Dehydrated Castro Oil (DCO)
Tung Oil
Soyabean Oil
Cashew Nut Shell Liquid (CNSL)
Other Less Important Oils
Refining of Drying Oils
Driers
2. Fundamentals of Paint, Varnishes & Lacquers
Paint
Varnishes
Lacquers
Solvents
White Pigments
Red Pigments
Yellow and Brown Earth Colours
Orange and Yellow Pigments
Green Pigments
Blue Pigments
Black Pigments
Extenders
Oils Used In Paints
Resins Used In Paints, Varnishes And Lacquers
Solvents Used In Paints, Varnishes and Lacquers
Additives Used In Paints, Varnishes and Lacquers
3. Oils Used In Paints and Varnishes
Drying Oils
Conjugated Oils
Semi Drying Oils
Non-Drying Oils
Derivatives of Drying Oils
Refining of Oils
4. Solvents
Hydrocarbons
Ketones
Esters
Glycol Ethers
Alcohols
Terpenes
5. Plasticizers

General Properties of Plasticizers

6. Additives in surface Coatings

7. Formulary with Processes of Distempers,

Whitewash, Putties & Emulsion

White Distemper

Sky Blue Distemper

Yellow Distemper

White Wash

Putties

Non-Freezing Putty

Modified Putty

Emulsion Paints

8. Formulations

Enamels

Luminous Paints

Paint for Structural Steel

Asbestos Paints

Mica Lustre Paint

Aluminum Priming for Wood

Water Emulsion Paints for Exterior Use

Varnishes

Lacques

9. Lacquers

Cellulose Products

Ethyl Cellulose

Lacquer Manufacture

Mertis of Cellulose Lacquers

Aeroplane Lacquer

Book Lacquer

Varnishes

Different kinds of Varnishes

Oil Varnish

Turpentine Varnish

Spirit Varnish

Water Varnish

Oil Varnishes

Preparation of Oil Varnishes

Gum Running

Addition of Drying Oils

Thinning

Maturing

Different kinds of Oil Varnishes

Exterior Varnish

Interior Decorators Varnish

Rubbing Varnish

Polishing Varnish

Flat Varnish

Gold Size

Black Varnish

Formulase of Oil Varnishes

Spirit Varnish or Lacquer

Resins

Solvents

Plasticizers
Alcohol Varnish
Turpentine Varnishes
Formulas for Preparing Spirit Varnishes
French Varnish
Varnish Prepared from Synthetic Resins
Spar Varnish
Process
10. Paint Manufacturing Different Types of Paints and Various Formulations
Premixing
Grinding Operation
Tinting Operation
Oil Based Paints
Modern Gloss Finishes
Heat Resisting Paints
Flame Retardant Paints
Plastic Paints
Floor Paints
Flat Paints
Aluminium Paint
Wrinkle Finishes
Hammer Finishes
Marine Coatings
Introduction
Ship Paints
Hull Paints
Top Sides Finish
Boot Topping Paints
Antifouling Paints
Anti-Corrosive Paints
Road Marking Paints
Chemical Resistant Coatings
Synthetic Enamel Paints
Bituminous Coatings
High Solids Finishes
Curing Agent :
Graphite and Graphite Paints
11. Primers
Primer for Metals
Types of Primers
Blast Primers
Metallic Zinc Primers
Red Oxide/Zinc Chrome Primers
Lead Based Primer
Wash Primer
Primers for wood
Leadless Primers :
Aluminium Primer
Emulsion Primers
Wall Primers & Sealers
12. Major Defects Which Occurs in Paints, Varnishes and Lacquers 125-129
Alligatoring

Bleeding
Blistering
Blooming
Blushing
Brush Drag
Brush Marking
Chalking
Checking
Cissing
Cracking
Efflorescence
Fading
Floating
Flooding
Gas Checking
Loss of Gloss
Lifting
Leaching
Orange Peel
Pinholing
Sagging
13. Powder Coatings
Thermoplastic Coatings
PVC Coatings
Thermosetting Coating Powders
Epoxy Powder Coatings
Formulation of Powder Coatings
Fluidized bed Coating
Electrosatic Fludized Bed Coatings
Electrostatic Spray Coating
14. Drying Oils : Their Origin, Manufacture and Properties
General History
Types of Drying Oils
Manufacturing and Refining Methods
Solvent Extraction
The composition of Drying Oils
Future Developments
15. Pigments-General Classification and Description
Definition of Paint
Purposes of Pigments in Paint
Hiding Power of Paint
Extender Pigments
Pigment Manufacturing
16. White Hiding Pigment
17. Organic Toners and Mineral Pigments
Color Blending
Metallic Pigments
Blacks
Earth Colors
Inorganic Blues
Organic Blues
Browns
Greens

Organic Greens
Marron Pigment
Oranges
Reds
Violets
Yellows
18. Rosin and Rosin Derivatives
19. Alkyd Resin Technology
20. Miscellaneous Resins in Protective Coatings
Petroleum Resins
Terpene Resins
Coumarone-Indene Resins
Maleic Resins
Chlorinated Resins
21. Solvent-type Resins
Brush Lacquers
Acknowledgment
Ethyl Cellulose
Parlon
Vinyl Resins
Polystyrene and Styrene Resins
Acrylate and Methacrylate Resins
Allyl Resins
Pliolite
Silicone Resins
22. Hydrocarbon Thinners
Measures of Solvency
Composition
Viscosity Reduction
Tests for Purity
Volatility
Conclusion
23. Formulation of the "Volatiles" in Nitrocellulose Lacquers
Solvents and Diluents
Latent Solvents
Thinners
24. The application of Metallic Soaps as Driers, Fungicides,
Suspending Agents and Flatting Agents
Theories on the Mechanism of the Action of Driers
Efficiency of Driers
Effect of Vehicle
Metallic Soaps as Fungicides
Metallic Soaps and Suspending Agents
Metallic Soaps as Flatting Agents
25. The Testing of Raw Materials
Reasons for Testing Raw Materials
Completeness of Testing
Solvents
Drying Oils
Conclusion
26. Resin and Varnish Manufacture
Tung Oil
Oiticica Oil

Perilla and Linseed Oils
Other Oils
Oil-Resin Combinations
27. Industrial Finishes
Classification
Manufacturing Methods for Industrial Finishes
28. Trade Sales Paints
Shingle Stain
Spar Varnish
Exterior Enamels
Gaulking Compounds
Asphalt and Coal-tar Paint
Wall Primer and Sealers
Wall finish Coats
Enamel Undercoaters
Enamel Finish Coats
Varnishes
Floor Paints and Enamels
Miscellaneous
29. Water and Emulsion Paints
30. Aminoplast Resins
Chemistry and Composition
Commercial Practice and Composition
Functional Use and Mechanism
Formulation
31. Phenolic Resins
32. Epoxy Resins
Physical and Chemical Characteristics of Epoxy Resins
Two-Package or Amine-Cured Epoxy Coatings
Epoxy Esters
High-Performance Baking Finishes
Other Types of Epoxy Coatings
33. Acrylic Resins
Types of Acrylic Resins
Properties of Acrylic Resins
Polymerization of Acrylic Monomers
Applications of Acrylic Polymers
Starting Formulations
34. Vinyl Resins for Coatings
Polymerization Methods
Vinyl Chloride Solution Resins
Vinyl Dispersion Resins
Polyvinyl Acetal Resins
Polyvinyl Acetate
35. Urethane Coatings
Raw Materials
Coating Vehicle Intermediates
Chemistry
Classification of Coatings
Drying Oil Modified Urethanes
Prepolymers
Blocked Isocyanates
Two-Package Urethane Coatings Astm-4

Polyester/Polyisocyanate Two-Component Systems, Astm-5
Comparison of Urethane Coatings with Competitive Coatings
Improved Color Stability
Lower-Cost Urethanes
Conclusion
36. Oxygenated Solvents
Ester Solvents
Ketone Solvents
Glycol Ether Solvents
Alcohols
Other Solvents
Solvent Properties
Formulation of Solvents Systems
37. White Pigments
Opacity
The reactive white Pigments
The nonreactive white Pigments
38. Coloured Pigments
Chrome Yellows
Zince Yellows
Strontium Yellow
Nickel Titanate Yellow
Nickel Azo Yellow
Cadmium Yellow
Yellow Iron Oxide
Hansa Yellows
Benzidine Yellows
Vat Yellows
Chrome Orange
Molybdate Orange
Cadmium Orange
"Mercadium" Orange
Benzidine Orange
Dinitraniline Orange
VatDay Oranges
Chrome Greens
Chromium oxide
Hydrated Chromium Oxide
Copper Phthalocyanine Green
Organic Green Toners
Iron Blues
Copper Phthalocyanine blues
Ultramarine Blue
Organic Blue Toners
Indanthrone Blue
Carbazole Dioxazine Violet
Organic Violet Toner
Mineral Violet
Quinacridone Violet
Lithols
Para Reds
Toluidine Reds
Lithol Rubine

Chlorinated Para Red
Quinacridone Reds and Maroons
Red Iron Oxide
Cadmium Red and Maroons
"Mercadium" Reds and Maroons
Red Lead
Thioindigo Reds and Maroons
Arylide Maroons
Siennas, Ochres and Umbers
Carbon Blacks, Lampblacks and Bone Blacks
Tinting Properties of Colored Pigments
39. Paint Formulation
Art
Science
Raw Materials
Manufacture
Cost
Performance
Principles
Pigments Volume Concentration
Critical Pigment Volume Concentration
Pigment
Vehicle
Solvents and Driers
Formulation Example
Computer
40. Pigment Dispersion
Definition
Method.
Equipment
Mill Base Formulation
Setting Up a Laboratory Formula
Equipment setups and Limitations
Tank Configuration
Premixers
Conclusions
41. Emulsion Paints
Ingredients of An Emulsion Paint
Emulsion Formation
Stability of Emulsions
42. Maintenance Paints
Paint Types and Selection
Coating Types
Description By Generic Types
Principles of Effective Maintenance Painting
Substrate Materials
Effect of Exposure
Paint System and Application
43. Aluminum Pigments and Paints
History
Methods of Manufacture
Properties and Characteristics of The Pigment
Aluminium Pigments Products

Testing Aluminum Pigments
Aluminum Paints
Application Methods
44. Aerosol Coatings
Definition
Description
Components
Paint Formulation
45. Paint and Varnish Removers
Paint Removal
Solvent Paint and Varnish Removers
Nochlorinated Solvent Paint Removers
46. Machinery & Equipments for Paint & Varnish Industry
Triple Roil Mill
Sand Grinder
Colloid Mill
Amalgamator or Horizontal Mixer
Attrition Mill
Roll Mill
Cone Blender Mixer
Drum Type Mixer
Planetary Paste Mixer
Portable Stirrer
High Speed Dissolver
Steam Jacket Pans and Kettles
Emulsifiers
Filter Press
Unroll Mill

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 varies 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

