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
Diriers
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

Additives in surface Coatings

Formulary with Processes of Distempers, Whitewash, Putties & Emulsion

Distemper

Blue Distemper

Yellow Distemper

White Wash

Putties

Non-Freezing Putty

Modified Putty

Emulsion Paints

Formulations

Enamels

Luminous Paints

Paint for Structural Steel

Asbestos Paints

Mica Lustre Paint

Aluminum Priming for Wood

Water Emulsion Paints for Exterior Use

Varnishes

Lacquers

Cellulose Products

Ethyl Cellulose

Lacquer Manufacture

Merts 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
Bittumious Coatings
High Solids Finishes
Curing Agent:
Graphite and Graphite Paints
11. Primers
Primer for Metals
Types of Primers
Blast Primers
Metallic Zince 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 Pell
Pinholing
Sagging

13. Powder Coatings
   Thermoplastic Coatings
   PVC Coatings
   Thermosetting Coating Powders
   Epoxy Powder Coatings
   Formulation of Powder Coatings
   Fluidized bed Coating
   Electrostatic Fluidized 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
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
Zinc Yellows
Strontium Yellow
Nickel Titanate Yellow
Nickel Azo Yellow
Cadmium Yellow
Yellow Iron Oxide
Hansa Yellows
Benizidine Yellows
Vat Yellows
Chrome Orange
Molybdate Orange
Cadmium Orange
"Mercadium" Orange
Benizidine Orange
Dinitriline Orange
Vat Day 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, Ochers and Umbers
Carbon Blacks, Lamp blacks 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 Materialss
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.


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.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs
are often faced with the dilemma of zeroing in on a suitable product/line.