



World Skill Development Institute

1. Paint making and formulation certificate course

Course Duration – 6 Months.

Paints, varnishes, pigments and enamel 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. A pigment is a material that changes the color of reflected or transmitted light as the result of wavelength selective absorption. This physical process differs from fluorescence, phosphorescence, and other forms of luminescence, in which a material emits light. 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. Enamel paint is paint that air dries to a hard, usually glossy, finish, used for coating surfaces that are outdoors or otherwise subject to wear or variations in temperature; it should not be confused with decorated objects in painted enamel, where vitreous enamel is applied with brushes and fired in a kiln. 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, pigments,

varnishes and enamels is bright. In the next few years its value will go up gradually in line with the global trend.

1. TESTING OF RAW MATERIALS FOR COATINGS

Pigments

Oil Absorption

Color

Tinting Strength of Colored pigments

Tinting Strength of White Pigments

Coarse Particles

Oils

Mono-Di-and Triglycerides

Instrumental Analysis of Oils

Gas Chromatography

Resins, Polymers, Plasticizers

Solvents

2. PAINT TESTING

Importance of testing

Classification

Discernment of Appropriate Qualities

Selection of Test

Conduct of Test

Interpretation of Results

Establishment of Standard Variances

Color Testing

Incorrect Standards And Test Procedures in Industry

Statistical Analysis

3. COLOR IN PAINT

Visible Spectrum

Three Dimensions of Color

Tri stimulus Values X, Y, Z

Chromaticity Coordinates

Color Order Systems

Sample Preparation for Color Measurement

Tolerance Specification

Color Control by Visual Observation

Color Control by Instrumentation

Mac Adam Tolerances

Instrument Accuracy for Tolerance Limitations

Gloss and Its Effect on Color

Light Sources for Color Matching

Color Formulation

4. MAINTENANCE PAINTS

Paint Types and Selection

Barrier Protection

Sacrificial Protection

Coating Types

Resistances

Description by Generic Types

Oil Derived

Sacrificial Metal

Silicones

Thermosetting Resins

Neoprene

Waxes and Greases

Bitumens

Rubber Base

Vinyl Chloracetate

Principles of Effective Maintenance Painting

Failure Mechanism

Coating Thicknesses

Number of Coats

Wood

Nonferrous Metals

Effect of Exposure

Paint System and Application

Surface Preparation

Priming

Intermediate and Finish Coating

5. EMULSION PAINTS

Ingredients of an Emulsion Paint

Surfactants

Structure of Surfactants

Types of Surfactants

Behavior of Emulsions

Protective Colloid

pH

Emulsion Formation

Emulsion Polymerization

Polymerization.

Ingredients

Post-emulsification

Stability of Emulsions

6. EXTERIOR OR INTERIOR PAINTS

Exterior or Interior White Medium Texture Masonry Paint
(TT-C-00555) (Styrene-Acrylate/Chlorinated Paraffin)

Exterior or Interior White Medium Texture Masonry Paint
(TT-C-00555) (Styrene-Acrylate/Chlorinated Paraffin/Resin)

Exterior or Interior White Medium Texture Masonry Paint
(TT-C-00555) (Styrene-Butadiene/Chlorinated Paraffin)

Exterior or Interior White Medium Texture Masonry Paint
(Vinyl Toluene-Acrylate/Chlorinated Paraffin)

Exterior or Interior White Medium Texture Masonry Paint
(TT-C-00555) (Vinyl Toluene-Butadiene/Chlorinated Paraffin)

Exterior or Interior General Purpose Aluminum Paint (Alkyd)

Exterior or Interior General-Purpose High-Quality Aluminum Paint (Coumarone-Indene/Menhaden Oil)

7. EXTERIOR OR INTERIOR MULTICOLOR PAINTS

Exterior or Interior White Multicolor Paint

(Vinyl Toluene-Butadiene)

Exterior or Interior Tint Base Multicolor Paint

(Vinyl Toluene-Butadiene)

Exterior or Interior Black Multicolor Paint

(Vinyl Toluene-Butadiene)

Exterior or Interior Red Multicolor Paint

(Vinyl Toluene-Butadiene)

Exterior or Interior Varnish

Exterior or Interior Clear Varnish (Polyurethane)

8. EXTERIOR SWIMMING POOL PAINTS AND ENAMELS

Exterior White Swimming Pool or Masonry Paint

(Chlorinated Rubber/Hydrocarbon Resin/Chlorinated Paraffin)

Exterior Semigloss Blue Swimming Pool Paint

(TT-P-95A) (Styrene-Acrylate)

Exterior Gloss Blue Swimming Pool Paint

(Styrene-Acrylate)

Exterior Gloss Blue Swimming Pool Paint

(TT-P-95A) (Styrene-Acrylate)

Exterior Blue Swimming Pool Enamel

(Chlorinated Rubber/Chlorinated Paraffin)

Exterior Light Green Swimming Pool Enamel

(Two Component: Urethane-Catalyst)

9. INTERIOR CEILING PAINTS

Interior Flat White Ceiling Paint (Alkyd)

Interior Flat White Ceiling Paint (Alkyd)

Interior Flat White Ceiling Paint (Alkyd)

Interior Flat White High-Quality Low Cost Ceiling Paint (Alkyd)

10. METAL PAINTS

Ready-Mix Aluminum Paint

(Linseed Oil)

Galvanized Metal Primer

Zinc Chromate Primer

Specification of Suspension Properties

Lower Cost Utility Red Oxide Primer

Corrosion Resistant Top Coat

Deep Yellow Aerosol Enamel

Gray Automotive Enamel

Gray Automotive Enamel

Implement Enamel

Screw-Cap Coating

White Coating for Can Bodies

Metal Protective Coating

Valve and Actuator Selection

Application

Zinc Rich Primer

Zinc Chromate Primer

Iron Oxide - Zinc Chromate Primer

Epoxy-Ester Zinc Chromate Spraying Primer

Lead Silico Chromate Primer

Baking Primers

Red Lead Metal Primer

Uses

Red Lead/Red Iron Oxide General Purpose Flash Dry Primer

Iron Oxide Primer

Red Primer

Automotive Flash Primer

Strontium Chromate Primer

Appliance and Metal Furniture Primer

Detergent-Resistant Appliance Primer

Stainless Steel Industrial Maintenance Primer

Gray Baking Sanding Primer Surfacer

Uses

White Appliance Enamel

Epoxy White Gloss Enamel

White Enamel

White Brushing Enamel

White Metal Deco Enamel

Machinery Enamel

Gray Enamel

Epoxy Green Enamel

Clear Epoxy Coating

Application

Epoxy Clear Film

Black Aerosol Enamel

Gray Spraying Finish

Uses

Unpigmented Can Coating

Can Coating and Drum Lining

Unpigmented Drum Lining

Clear Interior Drum Lining

Uses

Unpigmented Tank Lining

High Solids Tank Liner

Chemical Resistant Metal Coating

White Roller Coat Tube Enamel

Red Lead-Iron Oxide Mastic Coating

Resin Coating

Procedure

Aluminum Paint

Interior Mill White Gloss Enamel

(Triamino-Ester)

Coil Coating - Resistant Siding Type

Polyester White Coil Coating Enamel

White High Gloss Electrocoating

Primer for Galvanized

Red Iron Oxide Primer

Procedure

Dark Grey Single Coat or Primer

Beige Single Coat

Latex Maintenance Enamels

Exterior Latex Metal Paint

Interior Latex Flat Wall Paint for Machine and Tube Colorants

Latex Aluminum Paint

Latex Aluminum Paint

Zinc Chromate, Corrosion Inhibiting Primer

Maintenance Primer

Acrylic Lacquer Aerosol Metal Coating

Package

Directions for Use

Precautions

Aerosol Aluminum Enamel

Aerosol High Temperature Aluminum Paint

Package

Directions for use

Precautions

Lead Primer

Lead Silico Chromate Primer

Anticorrosive Primer

Anticorrosive Chlorinated Rubber Thick Coatings Primers

Anticorrosive Chlorinated Rubber Topcoats

Thixotropic Zinc Chromate Primer

11. MARINE PAINTS

Marine Anticorrosive Primer High Flash Point Solvent

Marine Anti-Fouling Ship-Bottom Paint with High Flash Point

Marine Vinyl/Alkyd Enamel (Black)

Grey Marine Vinyl/Alkyd Enamel

Zinc Dust Primer

Underwater Coating

Composition of Rosin-Vinyl Antifouling Paints

(Nonvolatile Portion Only)

Rosin Antifouling Coatings

Chlorinated Rubber Marine High-Build Coatings with Inhibiting Pigment for Airless Spray

Metallic Lead Primer

Chlorinated Rubber Antifouling Coatings

Chlorinated Rubber Antifouling Marine Paint System

(Metallic Coatings)

(Thick Coatings)

(Antifouling Topcoat)

Marine Coating for Cold, Damp Weather Application

Marine Primer for Cold, Damp Weather Application

Tri-Amino Marine Enamel

Tri-Amino Marine Spar Varnish

12. ENAMEL PAINTS

Semi-Gloss Enamel

White Semi-Gloss Enamel

Dark Green Porch and Deck Enamel

High Quality Semi-Gloss Enamel

Black Rapid-Dry Enamel

Gloss White Architectural Enamel

Semigloss Tint Base

Odorless Alkyd Gloss Enamel

Odorless High Gloss White

Non penetrating Semi-Gloss

Non penetrating Gloss Enamel

Spraying Red Automotive Enamel

Alkyd Aerosol Enamels

Aerosol Packing

White Aerosol Enamel

Deep Yellow Aerosol Enamel

Stipple Gloss Enamel

High Solids, Light Blue Enamel

Preparation of Base Component

High Solids, Beige Enamel

Preparation of Base Component

White Tinting Enamel

Black Aerosol Enamel

White Aerosol Enamel

Epoxy-Amine High Solids White Spray Coating

Epoxy Solvent less Enamel

Gloss Enamel

Semi gloss Enamel

Painters Enamel

Gray High Solids Epoxy-Polyamide Spraying Enamel

Vanoxy Green, Enamel

Red Epoxy Enamel

Epoxy Green Enamel

Epoxy White Enamel

Yellow Gloss Epoxy Enamel

Gloss White Enamel

Blue Gloss Enamel

Yellow Industrial Enamel

Automotive and Equipment White Enamel

Bright Red Automotive Enamel

Industrial Orange Enamel

13. INTERIOR FIRE-RETARDANT PAINTS

Interior Intumescent Fire-Retardant White Paint

Interior Intumescent Fire-Retardant White Paint

Interior Intumescent Fire-Retardant White Paint

Interior Intumescent Fire-Retardant White Paint

Interior Fire-Retardant White Paint

14. INTERIOR GLOSS PAINTS

Interior Gloss White Paint (Acrylic)

Interior Gloss White Paint (Acrylic)

Interior Gloss White Paint (Acrylic)

Interior Gloss White Paint (Acrylic)

Interior Gloss White Paint (Acrylic)

Interior Gloss White Paint (Acrylic/Vinyl Acetate-Acrylic)

Interior Gloss White Paint (Acrylic/Vinyl Acetate-Acrylic)

Interior Gloss White Paint (Latex)

Interior Gloss White Paint (Styrene-Acrylate)

Interior Gloss White Paint (Vinyl Acetate)

Interior Gloss White Paint (Vinyl Acetate-Acrylic)

Interior Gloss White Paint [Vinyl Acetate-Acrylic(S)]

Interior Gloss White Paint (Vinyl Acetate-Ethylene)

Interior Gloss White Paint (Vinyl Acetate-Ethylene)

Interior Gloss White Paint (TT-p-1511A, Type II) (Acrylic)

Interior Full Gloss White Paint (Acrylics)

Interior High Gloss White Paint (Acrylic)

Interior Gloss White And Tint Base Paint (Vinyl Acetate)

Interior Gloss White And Tint Base Paint

Interior Gloss White and Tint Base Paint

Interior Gloss White And Tint Base Paint

(Vinyl Acetate - Ethylene)

Interior Gloss Tint Base Paint (Vinyl Acetate-Ethylene)

Interior gloss enamels

Interior Gloss White Enamel (Acrylic)

Interior Gloss White Enamel (Acrylic-Styrene/Alkyd)

Interior Gloss White Enamel (Alkyds)

Interior High Gloss White Enamel (Acrylic)

Interior High Quality Gloss White Enamel (Acrylic)

Interior High Quality Gloss White Enamel (Acrylic)

Interior High Quality Gloss White Enamel (Acrylic)

Interior High Quality Gloss White Enamel (Acrylic)

Interior High Quality Gloss White Enamel (Acrylic)

Interior Medium Cost Gloss White Enamel (Acrylic)

Interior Gloss White And Tint Base Enamel (Acrylic)

Interior Gloss White And Tint Base Enamel (Alkyd)

Interior High Gloss White And Tint Base Enamel (Alkyds)

15. INTERIOR SEMIGLOSS WHITE PAINTS

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior Semigloss White Paint (Vinyl Acetate-Acrylic)

Interior High Quality Semigloss White Paint

(Vinyl Acetate)

Interior High Quality Semigloss White Paint

(Vinyl Acetate-Acrylic)

Interior High Quality Semigloss White Paint

(Vinyl Acetate-Acrylic)

Interior High Quality Semigloss White Paint

(Vinyl Acetate-Acrylic)

Interior High Quality Semigloss White Paint

(Vinyl Acetate-Acrylic)

Interior Low Cost Semigloss White Paint (Acrylic)

Interior Low Cost Semigloss White Paint (Acrylic)

Interior Low Cost Semigloss White Paint (Acrylic)

Interior Low Cost Semigloss White Paint (Acrylic)

Interior Low Cost Semigloss White Paint (Acrylic)

Interior Low Cost Semigloss White Paint (Vinyl Acetate)

Interior Low Cost Semigloss White Paint

(Vinyl Acetate-Acrylic)

Interior Medium Priced Semigloss White Paint

(Vinyl Acetate-Acrylic)

Interior Medium Priced Semigloss White Paint

(Vinyl Acetate-Acrylic)

Interior Semigloss White and Tint Base Paints

Interior Semigloss White and Tint Base Paint (Acrylic)

Interior Semigloss White and Tint Base Paint

(Vinyl Acetate)

Interior High Quality Semigloss White and Tint Base Paint (Acrylic)

Interior Low Cost Semigloss White and Tint Base Paint

(Vinyl Acetate)

Interior Low Cost Semigloss White and Tint Base Paint

(Vinyl Acetate)

Interior Low Cost Semigloss White and Tint Base Paint

(Vinyl Acetate-Acrylic)

Interior Semigloss Tint Base Paint

Interior Semigloss Tint Base Paint (Acrylic)

Interior Semigloss Tint Base Paint (Acrylic)

Interior Semigloss Tint Base Paint (Acrylic)

Interior Semigloss Tint Base Paint (Acrylic)

Interior Semigloss Tint Base Paint (Acrylic)

Interior Semigloss Medium Tint Base Paint (Acrylic)

Interior Semigloss Pastel Tint Base Paint (Acrylic)

Interior High Quality Semigloss Tint Base Paint (Acrylic)

Interior Semigloss Enamel

Interior Semigloss White Enamel (Acrylic)

Interior Semigloss White Paint (Acrylic)

Interior Semigloss White Enamel (Acrylic)

Interior Semigloss White Enamel (Acrylic)

Interior Semigloss White Enamel (Acrylic)

Interior Medium Gloss White Enamel (Acrylic)

Interior Medium Gloss White Enamel (Acrylic)

Interior High Quality Semigloss White Enamel (Acrylic)

Interior High Quality Semigloss White Enamel (Acrylic)

Interior High Quality Semigloss White Enamel (Acrylic)

Interior Low Cost Semigloss White Enamel

(Vinyl Acetate)

Interior Moderate Cost Semigloss White Enamel (Acrylic)

Interior Semigloss White and Tint Base Enamel (Alkyd)

Interior Semigloss White and Tint Base Enamel (Alkyd)

Interior Semigloss White and Tint Base Enamel

(Vinyl-Acetate Acrylic)

Interior Semigloss White and Tint Base Enamel

(Vinyl-Acetate Acrylic)

Interior High Semigloss White and Tint Base Enamel

(Alkyd/Acrylic)

16. PAINT FORMULATION

Art

Science

Raw Materials

Manufacture

Cost

Performance

Principles

Pigment - Volume Concentration

Critical Pigment Volume Concentration

Pigments

Vehicle

Solvents and Driers

Formulation Example

White House Paint

Computer

17. MANUFACTURING TECHNOLOGY

1. Process Technology
 - 1.1 Paint Manufacture
 - 1.2 Powder Coating Manufacture
 - 1.3 Resin Manufacture
2. Equipments
3. Laboratory Equipment
4. Quality Control
5. Automation

18. THE MANUFACTURE OF NATURAL COPAL VARNISHES

Disintegration or Size Reduction of the Copal

Method of Heating

Stirring

Capacity of the Kettle

Condensation of Vapours

Addition of Drying Oil

Addition of Driers Lithorge, etc.

Addition of Liquid Driers and Thinners

Temperature Measurement

Discharging

Access to the Inside of the Kettle

Flanged or Welded Bottoms

Choice of Metal

Special Accessories

Fire Risks

Special Plant Designs

Choice of Running Kettle

General Plant Arrangement

19. THE MANUFACTURE OF BLACK VARNISHES

Charging the Vessel with Bitumen

Heating and Sweating

Addition of Resin

Addition of Oil

Addition of Driers

Cooling and Thinning

Cleansing

Storage

Oil-free Black Varnishes

Special Equipment

20. THE MANUFACTURE OF SPIRIT VARNISHES

Spirit Manila Varnishes

Shellac Varnishes

Accroides Varnishes

Oxidised Rosin Varnishes

Phenolic Resin Varnishes

Urea-formaldehyde Resin Varnishes

Hydrocarbon Base Varnishes

21. FLOOR PAINTS AND ENAMELS

Medium Tint Base Paint (Vinyl Acetate-Acrylic/Epoxy)

Gray Floor Paint (Acrylic)

Green Floor Paint (Vinyl Acetate-Acrylic/Epoxy)

Red Floor Paint (Vinyl Acetate-Acrylic/Epoxy)

Gray Floor Enamel (Acrylic/Alkyd)

22. INTERIOR CONCRETE PAINTS AND ENAMELS

Interior White Concrete Floor Paint (TT-P-0091D) (Styrene-Butadiene)

Interior Brown Concrete Enamel (Styrene-Butadiene)

Interior Battleship Gray Concrete Enamel

(Styrene-Butadiene)

Interior Light Gray Concrete Enamel (Styrene-Butadiene)

Interior Olive Gray Concrete Enamel (Styrene-Butadiene)

Interior Silver Gray Concrete Enamel (Styrene-Butadiene)

Interior Dark Green Concrete Enamel (Styrene-Butadiene)

Interior Tile Red Concrete Enamel (Styrene-Butadiene)

Interior Yellow Concrete Enamel (Styrene-Butadiene)

23. EXTERIOR WHITE ENAMELS

Exterior Low Gloss White Low-Odor Enamel

(Two-Component, Epoxy-Polyester)

Exterior Low Gloss White Low-Odor Enamel

(A.P.A. Approved) (Two-Component, Epoxy-Polyester)

Exterior Low Gloss White Low-Odor Enamel

(A.P.A. Approved) (Two-Component, Epoxy-Polyester)

Exterior Low Gloss White Low-Odor Enamel

(TT-C-545D Type) (Two-Component, Epoxy-Polyester)

Exterior Semigloss White Enamel (Alkyd)

Exterior Semigloss White Enamel (TT-E-490B) (Alkyd)

Exterior Semigloss White Low-Odor Enamel

(Two-Component: Epoxy Polyester)

Exterior Semigloss White Low-Odor Enamel

(Two-Component: Epoxy-Polyester)

Exterior Semigloss White Enamel (Styrene-Acrylate)
Exterior Semigloss White Enamel (Styrene-Acrylate)
Exterior Gloss White Color-Retentive Enamel (Acrylic)
Exterior Gloss White Enamel (Alkyd)
Exterior Gloss White Fast-Drying Enamel (Alkyd)
Exterior Gloss White Fast-Drying Enamel (Alkyd)
Exterior Gloss White Odorless Enamel (Alkyd)
Exterior Gloss White Trim Enamel (Alkyd)
Exterior Gloss White Enamel
(Two-Component: Epoxy-Polyester)
Exterior Gloss White Low-Odor Enamel
(Two-Component: Epoxy-Polyester)
Exterior Gloss White Enamel (Oxazoline)
Exterior Gloss White Enamel (Styrene-Acrylate)
Exterior Gloss White Enamel (Styrene-Acrylate)
Exterior Gloss White Marine and General Purpose Low-Cost Enamel (Urethane)
Exterior White Rapid-Drying Enamel (Alkyd)
Exterior White Enamel (Urethane)
Exterior White Tile-Like Enamel
(Two-Component: Urethane-Catalyst)

24. EXTERIOR OR INTERIOR ENAMELS

Exterior or Interior Gloss White Enamel (Alkyd)
Exterior or Interior Gloss White Enamel (Alkyd)
Exterior or Interior Gloss Blue Enamel
(Alkyd/Hydrocarbon Resin)

Exterior or Interior Gloss Gray Enamel

(Alkyd/Hydrocarbon Resin)

Exterior or Interior Gloss Green Enamel

(Alkyd/Hydrocarbon Resin)

Exterior or Interior Gloss Yellow Enamel

(Hydrocarbon Resin)

25. VARNISHES, LACQUERS AND FLOOR FINISHES

Cold-Blend Spar Varnish â€“ Metal

General-Purpose Utility Varnish

Crown Cap Varnish

Furniture Rubbing Varnish

Four-Hour Floor and Trim Varnish

Clear Floor Varnish

Flatted Alkyd Varnish

Alkyd Rubber Lacquer

Epoxy Clear Coating

Epoxy-Amine Clear Coating

Epoxy Clear Coating

Clear Flexible Epoxy-Amine Exterior Coating

Flatting Base

Clear Varnish

Gray Floor Enamel

MFMA Gym Floor Finish â€“ 40% Solids

General Purpose Varnish â€“ 50% Solids.

Marine Spar Varnish

Chemically Resistant Varnish

Overpaint Varnish

Porch and Deck Varnish

Venetian Blend Varnish

Clear Acrylic Lacquer

Directions for Use

Package

Precautions

Acryloid Acrylic Wood Lacquer

Protective Acrylic Coating for Copper Metal

Acrylic Lacquer

Clear Sanding Sealer

Varnish

Maroon Floor Varnish

(Phenolic Resin)

Shellac Primer Sealer

Furniture Lacquer

Cold-Blend Floor Varnish

Maroon Floor Paint

Vehicle

Gray Floor Enamel

Dull Finish Varnish

Flooring Primer

Green Floor Enamel

Red Floor Enamel

26. PIGMENTS - GENERAL CLASSIFICATION AND DESCRIPTION

Part A. Pigment Classification

Definition of Paint

The Functions of Pigments in Paint

Types of Pigments

Principles of Hiding Power

The Hiding Power of Paint

Part B. Supplemental Pigments

Definition

History

White Pigment Evaluation Methods

General Properties of Supplemental Pigments

Manufacture of Supplemental Pigments

The Major Supplemental Pigments

The Future of Supplemental Pigment Technology

27. WHITE PIGMENTS

Opacity

The Reactive White Pigments

Basic Carbonate White Lead

28. COLORED PIGMENTS

Chrome Yellows

Zinc 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

Vat Dye 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

BON (-OxynaphthOic) Reds and Maroons

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, Lampblacks and Bone Blacks

Tinting Properties of Colored Pigments

Chrome Yellows

Zinc Yellows

Basic Zinc Chromate

Strontium Yellow

Nickel Titanate Yellow

Nickel Azo Yellow

Cadmium Yellow

Yellow Iron Oxide

Hansa Yellow

Benzidine Yellow

Vat Yellows

Chrome Orange

Molybdate Orange

Cadmium Orange

Mercadium• Orange

Benzidine Orange

Dinitraniline Orange

Vat Dye Orange

Chrome Greens

Chromium Oxide

Hydrated Chromium Oxide

Copper Phthalocyanine Green

29. PIGMENT DISPERSION

Definition

Method

Equipment

Mill Base Formulation

Setting up a Laboratory Formula

Equipment Setups and Limitations

Tank Configuration

Premixers

Conclusions

30. PLASTICIZERS

History

Theory

Properties

Compatability

Efficiency

Permanence

Stability

Odor, Taste, Toxicity, Color, etc.

Classification of Plasticizers

Monomeric Chemical Plasticizers

Polymeric

Oil and Fatty Acid Derivatives

31. OXYGENATED SOLVENTS

Ester Solvents

Ketone Solvents

Glycol Ether Solvents

Alcohols

Other Solvents

Solvent Properties

Resin Solubility

Evaporation Rate

Solvent Strength

Flash Point

Odor

Water Sensitivity

Pounds per Gallon

Formulation of Solvent Systems

Nitrocellulose

Vinyl Copolymer Resins

Acrylics

Epoxy

32. WOOD COATINGS

Procedure

Blister-Resistant Oil-Based Primer

33. PAINT AND VARNISH REMOVERS

Paint Removal

Formulation

Solvent Paint and Varnish Removers

Solvents

Co-solvent

Activators

Chemical Removers

Nonchlorinated Solvent Paint Removers

Removal of Epoxies

Mechanism of Paint Removal

Methods of Paint Removal

34. THE MANUFACTURE OF PAINT REMOVERS

WASDI