

# **Paints, Varnishes, Lacquers, Spirit Varnishes, Solvents, Thinners and Surface Coatings**

[Manufacture of Paint, Varnish & Allied Products \(2nd Revised Edition\)](#)

**Author:** NPCS Board

**Format:** Hardcover

**Book Code:** NI25

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\*\*\*\*\*Limited Edition- available in Photostat Version

Only\*\*\*\*\* Paint is any liquid, liquefiable, or mastic composition that, after application to a substrate in a thin layer, converts to a solid film. It is most commonly used to protect, color, or provide texture to objects. Paint can be made or purchased in many colors—and in many different types, such as watercolor, artificial, etc. Paint is typically stored, sold, and applied as a liquid, but dries into a solid. Varnish is a transparent, hard, protective finish or film primarily used in wood finishing but also for other materials. Varnish is traditionally a combination of a drying oil, a resin, and a thinner or solvent. Varnish finishes are usually glossy but may be designed to produce satin or semi-gloss sheens by the addition of "flatting" agents. Varnish has little or no color, is transparent, and has no added pigment, as opposed to paints or wood stains, which contain pigment and generally range from opaque to translucent. The technology of paints, varnishes and allied products is changing rapidly and becoming more complex each day. The paint industry is an important segment of the chemical industry. Paint technology utilizes the science of chemistry, physics and engineering. The paint industry is broadly classified into decorative and industrial segment. Decorative paints consist 70% of market. Paints, varnishes, and allied product 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 like 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. The Rs 40,600-crore Indian paint industry is likely to see a 20 per cent compounded annual growth rate until 2016. The industry will reach the level of Rs 62,000 crore in the next two years. The rural market grew 20 per cent. Rural India's incremental consumption expenditure is growing well. And, the rural sector has a major share of the decorative paints segment. In FY14, per capita consumption of paint increased to a little over four kg, of which the decorative segment contributed 73 per cent at Rs 29,638 crore. The remaining Rs 10,962 crore was contributed by the industrial segment. The unorganized sector has around 35 per cent of the paint market. In the unorganized segment, there are about 2,500 units. The future for industrial paints, varnishes and allied product is bright. The content of the

book includes information about Paint, Varnish & Allied Products. The major contents of this book are project profiles of projects like Paint industry in India, Acrylic emulsion paints, Aluminium Paint, Cement Paint, Industrial paint, N.C. Thinner, Oil Based Paint, Paint Additives, Red Oxide Paint, Stoving Paint, insulating Varnishes etc. Project profile contains information like properties, B.I.S specification, market survey, manufacturing process, suppliers of raw material, process flow diagram, plant economics, land and building, plant and machinery, fixed capital, working capital requirement/month, total working capital/month, cost of project, total capital investment, turn over/annum, profit sales ratio, rate of return, breakeven point (B.E.P). This book is very useful for new entrepreneurs, technical institutions, existing units and technocrats.

# [The Complete Book on Resins \(Alkyd, Amino, Phenolic, Polyurethane Epoxy, Silicone, Acrylic\), Paints, Varnishes, Pigments & Additives \(Surface Coating Products with Formulae\)](#)

**Author:** NIIR Board of Consultants & Engineers

**Format:** Paperback

**Book Code:** NI64

**Pages:** 624

**ISBN:** 9788178331652

**Price:** Rs. 1,875.00 **US\$** 150.00

Surface coating is the application of decorative or protective materials in liquid or powder form to substrates. These coatings normally include general solvent type paints, varnishes, lacquers, and water thinned paints. Surface coating involves different types of products for example paints, varnishes, resins, polyesters, pigments etc. Alkyd resin is complex oil modified polyester that serves as the film coating agent in some paints and clear coatings. Varnish is one of the important parts of surface coating industry. They are used as clear, transparent coatings or as vehicles for a wide variety of pigmented, opaque coatings for architectural and industrial purposes. India's strong economic growth has propelled the paint industry to double digit growth over the past few years and has made it Asia Pacific fastest growing paint market. The spurt in the economic growth over the past few years has caused a tremendous increase in the size of the industry. The field of surface coatings is now so extensive, and is developing rapidly. This handbook covers all aspects of coating technology including composition, preparation, application, manufacturing process and photographs of plant & machinery with supplier's contact details. The major contents of the book are oleoresinous media, varnishes: composition, manufacture & use, alkyd resin technology, manufacture of alkyd resins, polyesters, amino resins, phenolic resins, polyurethane resins, epoxy resins, silicone resins, acrylic solution resins, emulsion polymerization theory, emulsion polymers, water reducible resins, water soluble polymers, solvents, inorganic pigments, titanium dioxide pigments, organic pigments, paint driers and architectural paints etc. It will be a standard reference book for professionals, entrepreneurs, food technologists, those studying and researching in this important area and others interested in the field of resins, paints, varnishes, pigments & additive industry.

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

**Author:** NIIR Board

**Format:** Paperback

**Book Code:** NI66

**Pages:** 682

**ISBN:** 8178330881

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

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.

# Paints, Pigments, Varnishes and Enamels Technology Handbook



**Author:** NIIR Board of Consultants and Engineers

**Format:** Paperback

**Book Code:** NI168

**Pages:** 672

**ISBN:** 8178330377

**Price:** Rs. 1,100.00 **US\$** 125.00

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. This book basically deals with testing of raw materials for coatings, paint testing, color in paint, maintenance paints, principles of effective maintenance painting, emulsion paints, exterior or interior paints, exterior or interior multicolor paints, exterior swimming pool paints and enamels, interior ceiling paints, metal paints, marine paints, enamel paints, interior fire retardant paints, interior gloss paints, interior semi gloss white enamel (acrylic), paint formulation, the manufacture of natural copal varnishes, the manufacture of spirit varnishes etc. The present book covers the various formulae and processes of paints, pigments, varnishes and enamels. This book is very suitable for new entrepreneurs, existing units, technocrats, technical institutions etc.

# [Selected Formulary Book on Inks, Paints, Lacquers, Varnishes and Enamels](#)

**Author:** NPCS Board of Consultants & Engineers

**Format:** Paperback

**Book Code:** NI192

**Pages:** 568

**ISBN:** 9788190439855

**Price:** Rs. 1,475.00 US\$ 150.00

A formula is an entity constructed using the symbols and formation rules of a given logical language. In science, a specific formula is a concise way of expressing information symbolically as in a mathematical or chemical formula. Formulation is a key process in the overall life cycle so that products are delivered that is of the right quality, at a competitive cost, and is made available within the specified time scale. The chemical formula identifies each constituent element by its chemical symbol and indicates the number of atoms of each element found in each discrete molecule of that compound. If a molecule contains more than one atom of a particular element, this quantity is indicated using a subscript after the chemical symbol and also can be combined by more chemical elements. It is all in the formula, whose implications also remain undiscovered by modern economists. It plays a major role in every process whether it is manufacturing process or preservation. There is a big importance of formula in our life because formulas and equations deal with everyday things like shapes, investments, mixing things, movement, lighting, travel and a host of other things they provide information you can use in planning activities. This book basically deals with inks and marking inks, inks for stamp pads, inks for hand stamps, color stamps for rough paper, indelible hand stamp ink, white stamping ink for embroidery, stencil inks, blue stencil inks, indelible stencil inks, sympathetic inks, typewriter ribbon inks, coloring agents, writing inks, how to decorate furniture, novelties, furniture lacquer enamels, white lacquer enamel, egg shell white enamel, high gloss white enamel, colors for furniture spraying, furniture lacquer formulas., enamels and industrial varnishes, general purposes varnish, spar and boat varnish, exterior varnish, varnish for outside work, spar and yacht varnish, quick drying interior varnish, crystal varnish (indoor), hard varnish for floors, colored linseed oil floor dressing, wrinkle finish varnish, brewers pitch and keg varnishes, undercoat varnish, quick drying varnish mastic varnish etc. This book present several hundred advanced product formulations for household, industrial and other applications. This book will be of help to development chemists looking for leads in the formulation of a wide range of products.

# Handbook on Paints and Enamels

**Author:** NPCS Board of Consultants & Engineers

**Format:** Paperback

**Book Code:** NI214

**Pages:** 592

**ISBN:** 9788178331164

**Price:** Rs. 1,275.00 US\$ 125.00

Paints 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. 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. Indian paint industry has a bright future. The Indian paints market has the potential to grow over the next decade at 15 to 20 per cent per annum owing to more investments in the housing segment and improving infrastructure, high growth in the Indian automobile industry, etc. which in turn would mean greater demand for paints, as most people aspire for better lifestyle. Moreover the per capita consumption is also low. The demand for premium category paints is likely to increase with rise in construction of commercial infrastructure. The players with aggressive marketing strategies and comprehensive product portfolios will grow at a faster rate. The emerging trends in technology and marketing indicate that the industry is likely to consolidate in the coming years with industry leaders improving their market share. Some of the fundamentals of the book are exterior paints, rapid drying stain and blister resistant house paint, exterior white paint, flat exterior paint, exterior alkyd paint, green trim paint, outside white house paint, hi hiding gloss white house paint, white primer, exterior white house paint, speciality paints, book cloth coating, upholstery fabric coating, green epoxy polyamide flexible fire retardant coating, fire retardant clear topcoats, ignition waterproofing seal coating, polyurethane paper coating, fluorescent gravure ink, industrial paints, aluminum baking enamel, gloss black enamel, corrosion resistant baking primer, heat resistant primer, orange baking enamel, purple baking enamel, black baking enamel, red baking enamel, blue baking enamel etc. This book is the outgrowth offered in the chemistry and chemical engineering of organic polymeric and resinous substances. Needless to say such a book is not available because of the rapidity of growth in the polymer

field; it has been difficult to resist the temptation to all with new discoveries and products. The book is emphasized on manufacturing of different types of paints, enamels and allied products. It was purposely made wide, so that the book could be used as a text regardless to particular field of interest. All the chapters are introduced separately with simpler language. The book will be very resourceful for technocrats, new entrepreneurs, industrialists and for those who wants to diversify into this field.

# Surface Coating Technology Handbook



**Author:** NPCS Board of Consultants & Engineers

**Format:** Paperback

**Book Code:** NI216

**Pages:** 680

**ISBN:** 9788178331188

**Price:** Rs. 1,475.00 US\$ 125.00

Surface Coating is in use since long back is rapidly increasing with the development of civilization. There has been considerable impact in this field. Surface coating technology specializes in finding out engineering solutions to all the critical production problems related to coating the products on a continuous and consistent basis in your production plant. Surface coating can be defined as a process in which a substance is applied to other materials to change the surface properties, such as colour, gloss, resistance to wear or chemical attack, or permeability, without changing the bulk properties. Production of surface coating by any method depends primarily on two factors: the cohesion between the film forming substances and the adhesion between the film and the substrate. The development of science and technology revolutionized the surface coating industry in the progressive countries of the world. Surface coating technology involves the use of various types of products such as resins, oils, pigments, polymers, varnishes, plasticizers, emulsions, etc. We have completely replaced costly petroleum solvents with water and we get cheaper finished products with no evaporation loss and fire hazards. 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. Varnish is one of the important parts of surface coating industry. 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. Plasticizer plays an important role in the formation of polyvinylchloride (PVC). It is also used to plasticize the polymers. Polymers are divided into three different types; linear polymers, branched polymers and cross linked polymers. Polymer Energy system is an award winning, innovative, proprietary process to convert waste plastics into renewable energy. On the basis of value added, Indian share of plastic products industry is about 0.5% of national GDP. This book basically deals with principles of film formation, evaporation of solvent from a solution, chemistry and properties of drying and other oils, glyceride structure and film formation, the size of polymer molecules, processing of oil

and resin, inorganic pigments, classification by chemical constitution, azo pigments, organic pigments in architectural (decorative), organic pigments in industrial finishes, solvent requirements of specific resins convertible systems, molecular structure of polymer plasticiser systems, properties of plasticised polymers, surface active agents, optical properties, rheological characteristics, emulsions and other aqueous media, formation of polymer emulsions, modern methods of analysis etc. The book presents a concise, but through an overview of state of technology for surface coating. This is organized into different chapters like principal of film formation, chemistry and properties of drying and other oils, processing of oil and resin, organic pigment, solvents, plasticizer, surface active agent, surface preparations etc. This book is an invaluable resource to technocrats; new entrepreneurs, research scholars and others concerned to this field.

# Spirit Varnishes Technology Handbook (with Testing and Analysis)

**Author:** H Panda

**Format:** Paperback

**Book Code:** NI234

**Pages:** 560

**ISBN:** 9788178331393

**Price:** Rs. 1,275.00 **US\$** 125.00

Varnish is a clear finish best suited for accenting wood grain. Technically, all resin and solvent mixes are varnishes. Most resin or gum varnishes consist of a natural, plant or insect derived substance dissolved in a solvent. The two main types of natural varnishes are spirit varnish (alcohol-based) and turpentine or petroleum based varnish. Spirit varnishes made with alcohol are conveniently prepared and on account of their rapid drying and leaving no disagreeable smell are in frequent use in the household for covering various articles of art. Resin is a class of non volatile (non-evaporating), solid or semisolid organic substances obtained directly from certain plants as exudations or prepared by polymerization of simple molecules. Some hard and soft resins used in varnishes are amber, copal, shellac, sandarac, mastic, resin of turpentine, dammar etc. Rosins are classified as pale yellow, yellow, reddish to yellow, brown or black rosin. If the injection water be not completely expelled the rosin is opaque. If the essential oils have not been completely eliminated the rosin is viscous and tacky. Spirit varnishes are more or less thin, more or less viscous, colourless or more or less coloured, opaque or transparent solutions, of one or more natural resins, e.g. shellac and shandarac etc., in one more appropriate volatile solvents which leave on evaporation a thin, more or less resistant film which both adorns and protects the object on which it is applied. Some of the fundamentals of the book are characteristics of spirit varnishes solvents, chemistry and distillation of rosin, sources and methods of obtaining turpentine, distillation of turpentine, turpentine testing and turpentine substitutes, chemistry and distillation of rosin, rosin spirit rosin oil, chemistry of terpenes and camphors, amber, asphaltum collodion and celluloid varnishes, India rubber, insulating, mastic and matte spirit varnishes, rosin spirit, sandarach, shellac spirit varnishes and enamels, testing and analysis of spirit varnishes, the determination of resins and solvents in spirit varnishes. This book gives detailed information on spirit varnishes, types and characteristics of spirit varnishes, sources of origin, principles of manufacturing processes, testing and analysis of spirit varnishes and many more. We hope this book will be very resourceful to all its readers, new entrepreneur, libraries, paint and varnish technologists existing industries etc.

# The Testing Manual of Paints, Varnishes and Resins

**Author:** H. Panda

**Format:** Paperback

**Book Code:** NI236

**Pages:** 592

**ISBN:** 9788178331416

**Price:** Rs. 1,875.00 US\$ 150.00

Paint can be applied to almost any kind of object. It is used in the production of art, in industrial coating, as a driving aid (road surface marking), or as a barrier to prevent corrosion or water damage. Quality control for paint product can be achieved through conducting a number of physical and chemical tests to paint samples. In the paint and coating industries, paint testing is often used to determine if the paint or coating will adhere properly to the substrates to which they are applied. Testing of paint, varnishes and resins can be done in a number of different ways. The fact of the matter is that many industries use several different paint testing methods in order to ensure accurate results. Products of the surface coating are essential for the preservation of all types of architectural structures, including factories, from ordinary attacks of weather, micro and macro organisms, atmospheric pollutant, etc. Architectural coatings are usually applied to wood, gypsum wall board, or plaster surfaces. Bituminous coatings are used on surfaces to reduce or eliminate the destructive effects of weather, chemicals and water vapour. They are also used as sound deadeners, to provide resistance to heat transfer and to provide abrasive coatings to minimize slip hazards. Traffic paint is an important factor in the control of traffic, not only of motor vehicles but also of aircraft at airports and of pedestrian traffic. Proper paint formulations depend upon raw materials selection and accurate calculation of the amounts of its constituents. Therefore it becomes necessary to adopt various test methods for testing the quality of product. The final product shall have no adverse effect on the health of personnel when used for its intended purpose and applied in approved facilities with the use of approved safety equipment. This testing manual elaborates the methods used to determine the physical and chemical properties of paint, varnish, resins, and related materials. Some of the fundamentals of the book are biological deterioration of paints and paint films, weathering tests natural weathering, artificial weathering machines, new jersey zinc company machine, gardener parks wheel, atlas weather Ometer, sunshine carbon arc weather Ometer, British railways machine, British paint research station machine, waxes and polishes, putty, glazing compounds, caulking, compound and sealants, tile like coatings, applicable specifications, adhesion tests, Evans adhesion

test, resistance to alkaline peeling (Evans method), paint for electrocoating, synthetic resins, driers and metallic soaps, natural resins The purpose of this book is to help its readers to establish standardized testing methodologies and to eliminate unnecessary or undesirable variations in test results when evaluating a products adherence to specification requirements. It is hoped that this book will help its readers who are new to this sector and will also find resourceful for new entrepreneurs, existing industries, technical institution etc.

# Handbook on Paint Testing Methods



**Author:** H. Panda

**Format:** Paperback

**Book Code:** NI237

**Pages:** 568

**ISBN:** 9788178331423

**Price:** Rs. 1,575.00 **US\$** 150.00

Paints and their allied products like varnishes, enamels, pigments, printing inks and synthetic resins protect assets from corrosion. These are increasingly being used in automotive, engineering and consumer durable sectors. Paint testing can be done in a number of different ways. The fact of the matter is that many industries use several different paint testing methods in order to ensure accurate results. Paint should be tested in a wet form for particular properties but also in the dry form. Testing of paints generally falls into three categories: testing of the raw materials, testing of the finished product and performance testing using accelerated weathering and other simulation type methods of evaluation. Coatings technologists deal with interfaces of all classes gas liquid as in an aerosol spray liquid liquid, as in an emulsion gas solid, as in a dry pigment before its immersion in a vehicle liquid solid, as in a pigment dispersion and solid solid, as when the crystal faces of two different pigment particles are in tight contact. Paint scientists are particularly interested in the formation of liquid solid interfaces that are stable in the package, that is, in the permanent replacement of the air at the air solid interface of the pigment by the vehicle to give the liquid solid interface of the dispersion. In coatings and similar products, the criteria for best performance particulate ingredients; inorganic, organic, extender and metallic flake pigments and dispersed phase of latexes depends on the size and shape of particles composing the particulate materials. The purpose of paint testing is to help and ensure that the minimum requirements for ingredients and material characterization are met by the manufacturer on a batch basis, and to help ensure that the formulated product will provide satisfactory performance in the environment. Handbook on Paint Testing Methods explains about aspect of gloss, specular gloss, sheen, contrast gloss, absence of bloom gloss, distinctness of image gloss, specular gloss evaluation, specular reflectance, geometric considerations, instrumentation, goniophotometers, specular glossmeters, basic factors producing hiding power, refractive indexes of white pigments, refractive indexes of organic pigments, films for testing preparation of films for test, pigments and extenders, metallic flake pigments, latexes, methods for determining particle, treatment of data, particle size with light microscope etc. This handbook elaborates the different testing methods of paints with an understanding of the various tests

that can be performed on product performance. This handbook will be very helpful to its readers who are related to this field and will also find useful for upcoming entrepreneurs, existing industries, technical institution, etc.

# Manufacture of Thinners & Solvents (Properties, Uses, Production, Formulation with Machinery Details)

**Author:** NPCS Board of Consultants & Engineers

**Format:** Paperback

**Book Code:** NI306

**Pages:** 232

**ISBN:** 9789381039830

**Price:** Rs. 1,575.00 US\$ 150.00

Solvents are defined as chemicals compound that are introduced during manufacture of the paint itself and before packaging, in order to maintain all components of the paint in a liquid / viscous state such as we know it. A solvent is usually a liquid but can also be a solid or a gas. Solvents find various applications in chemical, pharmaceutical, oil, and gas industries, including in chemical syntheses and purification processes. Thinners are defined as chemical compounds that are introduced into the paint prior to application, in order to modify the viscosity and other properties related to the rate of curing that may affect the functionality and aesthetics of the final layer painting. Paint thinner, a solvent used in painting and decorating, for thinning oil-based paint and cleaning brushes. A Thinner may be a single solvent or a combination of solvent types. Often, specific thinners are required by the manufacturer of a coating to prevent damage to coating properties that may occur when an inappropriate thinner is used. Solvents (for cleaning up or softening) and Thinners (for diluting or extending) are useful not only in painting but in other areas such as Wooden Furniture industry, Automobile industry, Ink industry, Rubber industry. As the paint industry is a major consumer of Thinners & Solvents, and is expanding at a tremendous speed, it is very obvious that the demand of thinners, too, will increase tremendously. The paints & coatings accounts for the largest share in the aliphatic hydrocarbon Thinners & Solvents market. It is also projected to be the fastest-growing application of the aliphatic hydrocarbon Thinners and Solvents market. The book contains Properties, Uses, manufacturing of Thinners & Solvents and providing information regarding thinner formulation. It also covers raw material suppliers, photographs of plant & Machinery with supplier's contact details. Some of the fundamentals of the book are thinner in Paint Industry, Health and Safety Measures of Chemicals, Pollution Control, Waste Disposal of Hazardous Chemicals and Storage, Labelling and Packaging of Chemicals etc. It will be a standard reference book for professionals and entrepreneurs. Those who are interested in this field can find the complete information from manufacture to final uses of Solvents and Thinners. It will be very helpful to consultants, new entrepreneurs, technocrats, research scholars, libraries and existing units.

# 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 various 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.

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