

**Adhesives, Chemical, Drugs, Gums, Insecticides,  
Jute, Pesticides, Petro Chemicals, Petroleum,  
Grease, Lubricants, Pharmaceuticals, Sealants,  
Starch, Leather Technology**

[Detailed Project Profiles On 9 Selected Chemical Industries \(2nd Edition\)](#)

**Author:** Ajay Kr. Gupta

**Format:** Hardcover

**Book Code:** NI1

**Pages:** 147

**ISBN:** 9789381039472

**Price:** Rs. 1,995.00 **US\$** 150.00

\*\*\*\*\*Limited Edition- available in Photostat Version Only\*\*\*\*\* Chemical industry is one of India's oldest industries, contributing significantly towards the industrial and economic growth of the nation. The Indian Chemical Industry forms the backbone of the industrial and agricultural development of India and provides building blocks for several downstream industries. Exports of chemicals from India have increased significantly and account for about 14% of total exports and 9% of total imports of the country. The Indian chemical industry comprises both small and large-scale units. Fiscal concessions granted to the small sector in the mid-eighties led to the establishment of a large number of units in the Small Scale Industries (SSI) sector. Against an overall installed capacity of around 10 mn tonnes, India produces nearly 8 mn tonne, of an assortment of chemicals. These exclude petrochemicals, but include chlor-alkalis, and dyes and dyestuffs. The chemicals industry is a highly versatile segment in the overall industrial economy of India. It has linkages with almost every other industrial activity, be it food processing, metallurgy, textiles, rubber or leather. There is, in fact, hardly any segment where chemicals do not feature. The major sub segments of this industry include alkali, organic chemicals, inorganic chemicals, pesticides, dyes & dyestuffs and specialty chemicals. The Indian chemical industry deals in products like fertilizers, bromine compounds, catalyst, sodium and sodium compounds, dye intermediates, inks and resins, phosphorous, paint chemicals, coatings, isobutyl, zinc sulphate, zinc chloride, water treatment chemicals, organic surfactants, pigment dispersions, industrial aerosols and many more. The size of the Indian chemicals industry was estimated to be around USD 83 billion. It contributes around 5% to India's total GDP. The chemical industry also accounts for 13% share in total exports and 8% share in total imports of India. The sector contributes around 20% to national revenue by way of taxes and levies. In terms of sub-sectors, the Indian chemicals industry is composed of base chemicals that account for 53% share, pharmaceuticals contributing 24%, specialty chemicals 18%, biotech 3% and agro chemicals 2% share. The Indian chemicals industry has huge growth potential for the future. The industry has remained among the fastest growing sectors of the economy. The chemical industry remains concentrated in the western region, which claims a near 50% share of investment flows. In the western region, Gujarat makes the largest contribution to the chemical industry's production activity. The content of the book includes information about chemical industry. the major contents of this book are project profiles of projects like copper sulphate from metallic scrap copper, hydrogen peroxide (anthraquinone autoxidation process), sodium chlorite (naclO<sub>2</sub>), zinc oxide (from zinc dross), poly aluminium chloride (PAC), calcium propionate, ethylene oxide, antimony potassium tartrate, humic acid from lignite coal. Project profile contains information like introduction, properties, uses and applications, process, 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.



## Detailed Project Profiles On Chemical Industries (Vol II) (2nd Revised Edition)

**Author:** NPCS Board

**Format:** Hardcover

**Book Code:** NI3

**Pages:** 158

**ISBN:** 9789381039144

**Price:** Rs. 1,695.00 US\$ 150.00

\*\*\*\*\*Limited Edition- available in Photostat Version Only\*\*\*\*\* Chemical industry, complex of processes, operations, and organizations engaged in the manufacture of chemicals and their derivatives. The chemical industry may be described simply as the industry that uses chemistry and manufactures chemicals. A chemical substance is a form of matter that has constant chemical composition and characteristic properties. It cannot be separated into components by physical separation methods, i.e. without breaking chemical bonds. It can be solid, liquid, gas, or plasma. The scope of the chemical industry is in part shaped by custom rather than by logic. An average chemical product is passed from factory to factory several times before it emerges from the chemical industry into the market. The chemical sector has witnessed growth of 13-14% in the last 5 years. A number of initiatives have been proposed in the 12th 5-year plan (2012-2017) to boost the growth of Indian Chemical industry like Target to increase the share of manufacturing in GDP to at least 25% by 2025 (from current 16%). Investments in manufacturing in the chemical sector are absolutely essential to ensure growth of the Indian chemical industry, FDI inflow picked up in FY11 reaching USD 2,345 Mn and USD 4,041 Mn in FY12. Indian Chemical industry also managed to lead industrial IIP in FY13. As per CSO sources, Chemicals IIP for FY13 stood at 3.1% while the overall IIP was 0.8%. The Indian chemicals industry, which earned revenues in the range of \$ 155-160 billion in 2013, is likely to grow at a rate of 11-12 percent in the next two to three years. The market is likely to grow at a Compound Annual Growth Rate (CAGR) of 13-14 percent. "Product customization and understanding of unique customer needs has been one of the key success levers for the Indian chemical industry. The chemical industry can be broadly classified into two segments – organic and inorganic chemicals. Organic chemicals cover over half of all known chemical compounds, and include petrochemicals, drugs, cosmetics, agrochemicals, etc. Inorganic chemicals comprise alkalis, dyes and dyestuffs. The content of the book includes information about chemical industry. The major contents of this book are project profiles of projects like acetylene gas, acrylic acid and its derivatives, ciprofloxacin HCl, dicalcium phosphate, glycerol monostearate, L-ascorbic acid (plain), manganese oxide, potassium iodate, precipitated calcium carbonate, single superphosphate, sodium silicate and zinc sulfate (33%, 21% & 12%) . Project profile contains information like introduction, properties, uses and applications, raw material used, manufacturing 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.



---

## Investment Opportunity in Drugs & Pharmaceutical Projects



**Author:** NPCS Board

**Format:** Hardcover

**Book Code:** NI5

**Pages:** 117

**ISBN:** 9789381039212

**Price:** Rs. 1,895.00 **US\$** 150.00

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

A pharmaceutical drug (medicine or medication and officially medicinal product) is a drug used in health care. Such drugs aid the diagnosis, cure, treatment, or prevention of disease. Drug therapy (pharmacotherapy) is an important part of the medical field and relies on the science of pharmacology for continual advancement and on pharmacy for appropriate management. Pharmaceutical or drug or medicines are classified in various other groups besides their origin on the basis of pharmacological properties like mode of action and their pharmacological action or activity, such as by chemical properties, mode or route of administration, biological system affected, or therapeutic effects. An elaborate and widely used classification system is the Anatomical Therapeutic Chemical Classification System (ATC system). The Pharmaceutical industry in India is the world's third-largest in terms of volume. The total turnover of India's pharmaceuticals industry between 2008 and September 2009 was US\$21.04 billion. While the domestic market was worth US\$12.26 billion. The industry holds a market share of \$14 billion in the United States. The pharmaceutical industry has been one of the fastest growing segments of the Indian manufacturing sector with an average annual growth rate of about 14%. It is projected to grow at an average annual rate exceeding 15% during 2007-2010 and is likely to reach the level of about USD 23 to 28 bn. This growth would be fuelled mainly by (i) access to low cost and high volume of generic drugs, (ii) mergers and acquisitions, (iv) industry consolidation, and (v) high growth of contract manufacturing. According to the Federation of Indian Chambers of Commerce and Industry (FICCI), another apex industry association, there are some 6,000 firms engaged in the sector. In terms of revenue generation, there are 100 big companies (including subsidiaries of MNCs) each with sales of at least USD 650,000, 200 medium size companies with sales ranging between USD 210,400 and USD 650,000; and 5700 small companies with sales of less than USD 210,400. India is the world's leading producer of generic drugs; its annual per capita consumption of pharmaceuticals has been among the lowest placed approximately at USD 4.50 per person as compared to USD 820 in the United States and USD 13 in China. Indian pharmaceutical companies now supply nearly all the country's demand for formulations and nearly 70% of its demand for bulk drugs. The Indian firms produce nearly 60,000 generic brands in 60 therapeutic categories and between 350 and 400 bulk drugs. India's drug market consists mainly of second and third generation drugs no longer subject to patent protection in the developed world. The content of the book includes information about drugs and pharmaceuticals. The major contents of this book are project profiles of projects like Drugs and Pharmaceutical Industries in India, L-Ascorbic Acid, Pharmaceutical Unit, Liquid Glucose, Glucose Saline, IV Fluids, Paracetamol, Sorbitol, Aspirin and Ibuprofen. Project profile contains information like properties, market survey, manufacturing, process flow diagram, raw material suppliers, suppliers of plant and machinery, plant economics, land and building, plant and machinery, fixed capital, working capital requirement/month, total working capital/month, 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.



## [Handbook On 100% Export Oriented Jute & Jute Products \(Eco Friendly Projects\)](#)

**Author:** P.K. Chattopadhyay

**Format:** Hardcover

**Book Code:** NI6

**Pages:** 105

**ISBN:** 8186623000

**Price:** Rs. 695.00 US\$ 100.00



Jute is a natural fibre obtained as an extract from the bark of the jute plant that grows like any other organic crop. This fibrous plant in earlier days was also used by the inhabitants as a delicacy that went along with their staple diet. Jute, the Golden Fiber as it is called, is the raw material used for making sacks world over. It is truly one of the most useful fibers gifted to man by nature, which is beautifully crafted in the form of handicrafts and many day to day products. Besides being the cheapest and the most important material of all textile fibers, it also provides work for millions of farmers, landless labourers, industrial workers and many others, both directly and indirectly. Jute is being cultivated in India for over centuries now. Its predominantly a crop of eastern India. Besides, there are several small scale industries in the decentralized sector producing handicrafts, decorative, twines, pulp & paper from jute and allied fibers and particle board from jute stick. India is recognized as the largest producer of raw jute and the biggest manufacturer of jute goods. There is tremendous capacity within people here to manufacture the widest range of products, tailored to customers demands. The country's modern and world class research & development facilities in the area of jute agriculture, product development & machinery design are used for developing high quality jute products matching the international standards. Indian Jute Industry has the capacity to produce and meet the International demand for food grade Jute bags and cloth. Food grade Jute Bags and cloth manufactured in India - are a boon in the context of global environmental and ecological concern. Indian food grade jute bags have a twin edged advantage: preservation of food in the most natural way. The jute industry can look forward to a brighter future provided urgent measure are taken to set the population of value added products in its programme for diversification. This book basically deals with jute cultivation, jute bags (gunny), jute shopping bags, jute garments, jute office stationery, jute decorative products, jute foot wear, jute brush for white washing, list of jute manufacturers in new Delhi, list of jute manufacturers in Panipat (Haryana), list of jute manufacturers in Ghaziabad (U.P.), Indian organisations for development of jute, new trends in jute blends. This book discusses with the modern scientific method of jute cultivation & processing into various products. Cost estimation for different kinds of products has been presented considering the prevailing market conditions.

---

## [Gums, Adhesives & Sealants Technology \(with Formulae & their Applications\) 2nd Edition](#)

**Author:** NIIR Board

**Format:** Paperback

**Book Code:** NI8

**Pages:** 700

**ISBN:** 9788178330952

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



Naturally occurring polysaccharides from plant exudates have been in use from many decades in immense quantities. Natural gums are natural polymers, which mainly consists of carbohydrates sometimes with small amounts of proteins and minerals. Gum and its derivatives are widely used in various industries as per its needs. The appearance and properties of natural gums determine their commercial value and end use. Due to their extraordinary, unrivalled technological & functional properties gum is used in many industries. Gums not only modify viscosity and consistency, they also often attenuate odour, taste and flavour intensity. Adhesive or sealant is a mixture in a liquid or semi-liquid state that is capable of holding materials together by surface attachment. Adhesives and sealants are used as a raw material for the manufacturing industry or for the service of different processing industries. Adhesives and sealants virtually touch every part of our lives. The adhesives and sealants are two chemically similar but functionally different groups of formulated products. There is no end in sight to the new materials, new formulation, and new uses to which adhesives and sealants will be put in the future. Some of the fundamentals of the book are advantages of adhesive bonding, hybrids and coupling agents, adhesive films, designing polymers for adhesives, fundamentals of adhesion, designing polymers for adhesives, thermodynamics of adhesion, casein and mixed protein adhesives, lime-free casein adhesives, foil to paper laminating adhesives, casein and protein blend glues as wood adhesives, chemistry of protein blend glues, natural rubber adhesives, vulcanizing latex adhesives, solution adhesives from natural rubber, halogenated butyl rubber, butyl rubber and poly isobutylene lattices, polysulfide sealants and adhesives etc. This book covers a wide range of polymeric adhesives and sealants, gums along with their essential formularies, distinguished by applications and based on technology. The main areas covered in details are the basic fundamentals, properties, uses and applications, formulations and chemistry, methods of manufacturing and lastly testing methods. This book will be very resourceful to its readers who are just beginners in this field and also to upcoming entrepreneurs, engineers, existing industries, technologist, technical institution etc.

---

## [Modern Technology of Soaps, Detergents & Toiletries \(with Formulae & Project Profiles\) 4th Revised Edition](#)



**Author:** P. K. Chattopadhyay

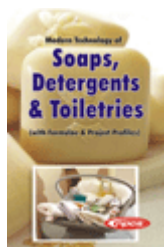
**Format:** Paperback

**Book Code:** NI34

**Pages:** 448

**ISBN:** 9789381039700

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



There has been consistent rise in Indian toiletries Industry. Novelty in ideas and marketing seems to be the major subject matter of the Indian soap industry. With increasing popularity there has been increase in potential competitors but it still has the opportunity of further exploitation. The soaps, detergent and toiletries product industry is vivacious, varied, creative and tricky, and has the prospective to provide a gratifying career. Since these are basic requirements throughout the world undoubtedly the toiletries industry is one of the fastest growing and most profitable markets in international arena has been for the past many years. Total quality management has its importance in managing every industry so is its importance and relevance in Oils, Soaps, and Detergents Industries. Featured as one of best seller the book modern technology of soaps, detergent and toiletries is another resourceful book written by P. K. Chattopadhyay. The author is highly experienced consultant to cosmetics and toiletries industries. The book contains the formulae of diverse types of soaps, detergents (cake, powder and liquid) toiletries, methodical testing method, quality control of complete products, packing criterion of cosmetics and toiletries along with project profiles, machinery photographs and addresses of raw material, plant and machinery suppliers. The book contains detail chapter on: Principal Groups of Synthetic Detergents Classification, Detergent Bar, Washing Soap: Laundry Soap Formulation, tooth paste, after shave lotion, Hair Shampoo, Fundamentals of Science, Testing of Finished Goods, Finished Product Quality Control Procedures, Natural Essential Oils in India : A Perspective, Essential Oils in India and Trade Summary and Conclusion, etc. Basic information in entering a market and the opportunities and requirements of the potential sector has been the best way to penetrate in a market. How and what if properly answered can take you to a long way. The first hand information on different types of toiletries product have been properly dealt in the book and can be very useful for those looking for entrepreneurship opportunity in the soap industry.

---

## [Handbook on Soaps, Detergents & Acid Slurry \(3rd Revised Edition\)](#)



**Author:** NIIR board

**Format:** Paperback

**Book Code:** NI38

**Pages:** 800

**ISBN:** 9788178330938

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



Novelty in ideas and marketing seems to be the major subject matter of the Indian soap industry. The soaps, detergent and acid slurry product industry are vivacious, varied, creative and tricky, and have the prospective to provide a gratifying career. Soaps and detergents are used frequently in our daily life. We use them to wash our hands and clean our clothes without ever really paying attention to how they work. Beneath the plain white surface of a bar of soap lie an intriguing history and a powerful chemistry. It has been said that amount of soap and detergent consumed in a country is a reliable measure of its civilizations. There was a time when these products were luxury; now it is a necessity. Acid slurry is a sulphonation product made by sulphonation of linear alkyl benzene by oleum or so<sub>3</sub> or sulphuric acid or combinations of above. It is used in manufacturing of various detergents. The Soap and Detergent industry is profoundly lucrative with splendid market potential as well as bright future scope. In order to meet the requirement of market demand, many more new units are recommended to be established on small and cottage scale. Soaps and detergents are very similar in their chemical properties. However, there is a significant difference between them; soaps are produced from natural products, and detergents are synthetic, or manmade. The market is expected to grow at rates ranging from under 4% to around 4.5%. These are very modest rates considering that the lifestyles not only of urbanites, but even of well off rural folks are changing at a very high pace. The analysts are expecting the industry to continue to grow in both the industrialized as well as developing nations. The present book has been written keeping in view the basic difficulties of the entrepreneurs. Nominal investment is required for this industry which comprises simple method of processing for manufacturing of various types of soaps, detergents and acid slurry. The book contains chapters on: acid slurry, detergent manufacturing, detergents of various types, principal groups of synthetic detergents, inorganic components of detergents, synthesis of detergents, liquid detergents, packaging of soaps and detergent and many more such chapters. The enclosure also contains a list of suppliers of raw material (overseas) and list of plant and machinery suppliers (overseas). Fundamental information in venturing a market and the opportunity and prerequisite of the potential sector has been the superlative way to make a way into in a market. How and what if correctly taken care can take you to a long way. The first hand information on different types of soaps, detergent and acid slurry products have been properly dealt in the book and can be very useful for those looking for entrepreneurship opportunity in the said industry.

---

## [Adhesives Formulary Handbook \(Reprint\)](#)

**Author:** NIIR Board

**Format:** Paperback

**Book Code:** NI41

**Pages:** 600

**ISBN:** 817833061X

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



Adhesives surround us in nature and in our daily lives. Adhesive, or glue, is a mixture in a liquid or semi liquid state that is capable of holding materials together by surface attachment. An adhesive is a compound that adheres or bonds two items together so as to form a single unit. Adhesives may come from either natural or synthetic sources. Adhesives and sealants virtually touch every part of our lives. Some modern adhesives are extremely strong, and are becoming increasingly important in modern construction and industry. A large and growing number of adhesives are available in the market. Adhesives for this growing market range from the simplest glues and mucilages for furniture making and repair, to metal to metal bonding for frame construction. There is no end in sight to the new materials, new formulation, and new uses to which adhesives will be put in the future. Formulations generally are compounded to satisfy a special need or needs. Therefore, uniformity of neither product nor end use exists. Applicators of different adhesives are designed according to the adhesive being used and the size of the area to which the adhesive will be applied. The adhesive is applied to either one or both of the materials being bonded. The pieces are aligned and pressure is added to aid in adhesion and rid the bond of air bubbles. Adhesives are of great use across innumerable industrial and commercial applications. Some of the fundamentals of the book are water based industrial type adhesives, home construction and related adhesives, water based wallpaper adhesive, fabric adhesives, water based adhesive for bonding non woven fabric to non woven fabric by knife coating, film adhesives, water based food packing adhesive for bonding, flocking adhesives, foam adhesives, water based adhesive for bonding urethane, industrial adhesives, bag seam and bottom paste adhesives, solid fiber, fiberboard and corrugated board adhesives, packaging adhesives etc. This indispensable book contains numerous essential adhesive formularies distinguished by application. This book will be an invaluable resource to its readers, upcoming entrepreneurs, scientists, existing industries, technical institutions, etc.

---

## [Modern Technology of Petroleum, Greases, Lubricants & Petro Chemicals \(2nd Revised Edition\)](#)

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

**Format:** Paperback

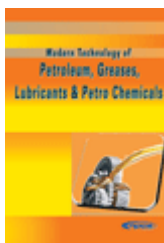
**Book Code:** NI45

**Pages:** 704

**ISBN:** 9789381039618

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

Lubricants, greases and petrochemicals are most versatile on the Industrial Plateau now a day. The significance of Lubricants, Greases and specialty products in the day to day functioning of nearly every machine part, instrument, appliance & device cannot be over emphasized lubricants reduce friction & wear between rubbing parts, thereby enhancing their life. A lubricant is a substance introduced to reduce friction between moving surfaces. It may also have the function of transporting foreign particles. The property of reducing friction is known as lubricity. The broad types of lubricating oils are as under; crankcase oils, gear oils, metal working oils, metal drawing oils, spindle and other textile oils, steam turbine oils. Synthetic lubricants have a higher viscosity index, but are less stable to oxidation. They are suitable for high temperature applications. In the modern industrial year, greases have been increasingly employed to cope with a variety of difficult lubrication problems, particularly those where the liquid lubricant is not feasible. Greases are essentially solid or semi solid lubricants consisting of gelling or thickening agent in a liquid lubricant. Greases and lubricants are one of the important products derived from crude petroleum. Petroleum is formed by hydrocarbons (a hydrocarbon is a compound made up of carbon and hydrogen) with the addition of certain other substances, primarily sulphur. Petroleum in its natural form when first collected is usually named crude oil, and can be clear, green or black and may be either thin like gasoline or thick like tar. The principal product of petroleum refining are motor gasoline, aviation gasoline, kerosene, jet fuels, diesel fuels, lubricating oils and fuel oils. Considerable quantities of petroleum wax, bitumen, liquid petroleum gases (LPG), industrial naphtha and coke are also produced. Petrochemicals are chemicals made from petroleum (crude oil) and natural gas. Petroleum and natural gas are made up of hydrocarbon molecules, which are comprised of one or more carbon atoms, to which hydrogen atoms are attached. The Indian lubricants industry claims to be the sixth largest in the world. The petrochemical industry in India has been one of the fastest growing industries in the country. This industry also has immense importance in the growth of economy of the country and the growth and development of manufacturing industry as well. Some of the fundamentals of the book are types of lubricating oils, crankcase oils, gear oils, metal working oils, metal drawing oils, spindle and other textile oils, steam turbine oils, synthetic lubricants, formulations and compounding of lubricants, additives for straight mineral oil gear lubricants, raw materials for lubricants, equipments for lubricants manufacture, reclamation of used lubricating oil, nature of contaminants in used lubricating oil, gravity methods of purification, metal forming and deforming lubricant, cutting oils, heat treatment oils, greases, sodium soap greases, lithium soap greases, aluminium soap greases, mixed soap greases, complex soap greases etc. The objective of this book is to furnish comprehensive information about nearly all prominent types of lubricants, greases and petrochemicals. This book covers formulae, processes of various petroleum items. This book is an invaluable resource for entrepreneurs, existing units, professionals, institutions etc.



---

## [Herbal Soaps & Detergents Handbook](#)



**Author:** H. Panda

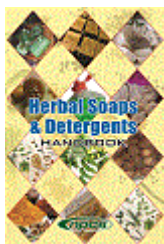
**Format:** Paperback

**Book Code:** NI53

**Pages:** 536

**ISBN:** 9789381039007

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



The use of herbs for medicinal and cosmetic purpose goes back to the ancient times. The emphasis at the present hour has been laid on the spectacular growth of the herbal and ayurvedic products. The demand in past is found to have increased with increase in number of middle class population. People are now a days very much aware of the ingredients in cosmetic products, the benefits of plant products and the harmful effects of chemical ingredients. The presence of artificial and chemical ingredients in cosmetic products has made people to rethink about suitable alternatives to suit their personnel care regime. The herbal products have finally made their appearance in packaged form in the domestic markets, as cosmetics and personal care preparation such as soaps, shampoos, detergent bars, liquid soaps, liquid detergents, etc. These products play a vital role in our sense of well being and quality of life. The herbal soaps and detergents directly influence our emotions and can trigger moods. These creations not only protect the skin from harmful sun radiations but also leave behind a pleasant fragrance. Due to the increasing awareness and importance of cleanliness and healthiness, the use of herbal products is also increasing. Future demand for herbal products depends upon the per capita rate of consumption and segment of population using these products. This handbook provides detailed information on the manufacturing process of herbal soaps and detergents. This book contains numerous formulae, manufacturing process of different type of soaps and detergents which are used in day to day life. The book is an unique compilation and will be very helpful to all its readers, new entrepreneurs, professionals, beauty care product manufacturers, existing units, technical institutions, etc.

---

## [Modern Technology of Synthetic Resins & Their Applications](#)

**Author:** NIIR Board

**Format:** Paperback

**Book Code:** NI71

**Pages:** 660

**ISBN:** 817833092X

**Price:** Rs. 975.00 US\$ 100.00



Synthetic resin is typically manufactured using a chemical polymerization process. This process then results in the creation of polymers that are more stable and homogeneous than naturally occurring resin. Since they are more stable and are cheaper, various forms of synthetic resin are used in a variety of products such as plastics, paints, varnishes, and textiles. There are various kinds of synthetic resins; acetal resins, amino resins, casein resins, epoxy resins, emulsion polymers, hydrocarbon resins, polyamide resins, polyesters rubber resins etc. The classic variety is epoxy resin, manufactured through polymerization, used as a thermoset polymer for adhesives and composites. Epoxy resin is two times stronger than concrete, seamless and waterproof. Polyamide resin is another example of synthetic resins. Polyamide resins are products of polymerization of an amino acid or the condensation of a diamine with a dicarboxylic acid. They are used for fibers, bristles, bearings, gears, molded objects, coatings, and adhesives. The term nylon formerly referred specifically to synthetic polyamides as a class. Because of many applications in mechanical engineering, nylons are considered engineering plastics. Resins are valued for their chemical properties and associated uses, such as the production of varnishes, adhesives, lacquers, paints, rubber and pharmaceutical uses. The applications of synthetic resins are seen in some important industries like paint industry, adhesive industry, the printing ink industry, the textile industry, the leather industry, the floor polish, paper, agricultural industry etc. As it can be seen that there is an enormous scope of application of resins hence it is one of the major field to venture. The major contents of the book are properties, manufacturing process, formulae of synthetic resins and applications of synthetic resins, manufacture of emulsion polymers, polyesters, derivatives of resins, use of resins in polymer field, alkyd resin technology, epoxy resins, application of emulsion polymers, manufacture of polystyrene based ion-exchange, phenol formaldehyde reactions, polycarbonates resins, polyester coating compositions, synthetic rubbers, modification with synthetic resins, water-soluble polymers, cross-linking of water-soluble coatings etc. This book also contains the list of manufacturers and dealers of raw materials, list of chemical plant and equipment manufacturers and so on in the directory section. The book is very useful for new entrepreneurs, manufacturers of synthetic resins who can easily extract the relevant formulation and manufacturing process from the book.

---

## [The Complete Technology Book on Pesticides, Insecticides, Fungicides and Herbicides with Formulae & Processes](#)

**Author:** H. Panda

**Format:** Paperback

**Book Code:** NI79

**Pages:** 706

**ISBN:** 8186623728

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



Pesticides, Insecticides, Fungicides and Herbicides are used in agriculture, forestry, animal husbandry, commercial centres and houses for the pest control. India's pesticide industry is the largest in Asia and the twelfth largest in the world and it has grown by 7.6 per cent during the last 20 years. During last 35 years, consumption of these products has increased manifold and industries are coming up throughout the world due to its increasing demand. Crops receiving the most intensive application of various pesticides were cotton for insecticides, corn for herbicides, and fruits and vegetables for fungicides. Examination of use trends of pesticides indicates that the volume in pounds of herbicides used on crops is increasing, whereas the quantities of insecticides and fungicides remain stable. The increased usage of pesticides, together with knowledge of some of their adverse effects, has alerted the public to the need for regulation. The insecticide usage is high in India because weeding is done manually in India and tropical climate of India which leads to greater incidences of insect infestations. Insecticides have a higher market share in India contrary to the global market where herbicides and fungicides have higher market shares. This book majorly deals with specification of pesticides, fungicides, permeability of liquid fumigants through polyethylene, insecticidal properties of deoxygenated and chlorinated shark liver oil, methods of determining chemical and physical properties, spectroscopic methods for determining the purity of products. This book also contains formulae, manufacturing process, infrared and ultraviolet spectra of seventy six pesticides and so on. The book contains formulae, processes of different types of pesticides, insecticides, fungicides and herbicides. This book will serve as a guide to research scientists, industrialists, policy makers and students.

---

## [Modern Technology of Industrial Chemicals](#)



**Author:** NIIR Board

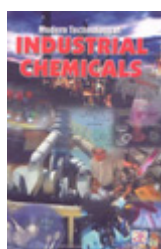
**Format:** Paperback

**Book Code:** NI80

**Pages:** 550

**ISBN:** 8178330695

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



Growth in demand for chemicals in developing countries is high leading to substantial cross border investment in the chemical sector. In modern age chemical industries have permeated most extensively in comparison with other industries and are progressing at a very rapid pace. The chemical industry comprises the companies that produce industrial chemicals. The applications of industrial chemical are in various fields like in dyes, chemical explosives and rocket propellants, fertilizers etc. Central to the modern world economy, it converts raw materials into more than 70,000 different products. Chemicals are used to make a wide variety of consumer goods, as well as thousands inputs to agriculture, manufacturing, construction, and service industries. Chemical industries produce chemicals from various products like chemical from milk, fats, coal, oranges, wood etc and utilized in many industries like dye, textile, fertilizers etc. Some of the examples of industrial chemicals are acetophenone, allethrin, calcium cyanamide, carboxymethylcellulose, hydroquinone etc. The chemical industry itself consumes 26 percent of its own output. Chemical industry is one of the oldest industries in India. It not only plays a crucial role in meeting the daily needs of the common man, but also contributes significantly towards industrial and economic growth of the nation. The chemical industry forms the backbone of the industrial and agricultural development and provides building blocks for downstream industries; it is an important constituent of the Indian economy. Global chemical production is growing and the growth is contributed by the chemical industry of developing countries. The chemical industry in India which generates almost 13% of total national export is growing annually at a growth rate anywhere between 10% and 12%. This book basically deals with properties, formulae, manufacturing of chemicals, purification of the product and efficiency of the product. The major contents of the book are dye application, granulated fertilizers; purification includes dehydrogenation and further distillation, carotene and chlorophyll: commercial chromatographic production, chemical explosives & rocket propellants, chemicals from acetaldehyde, chemicals from fats, chemicals from milk, chemicals from oranges so on. This book also deals with manufacturing processes with reaction, technical details, equipments involved in processing etc. This book elucidates chemicals which have good market potential. The book is a valuable resource for new entrepreneurs, industrialists, research scholars, technical libraries, consultants etc.

---

## [The Complete Technology Book on Starch and Its Derivatives](#)

**Author:** H. Panda

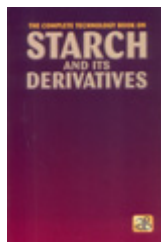
**Format:** Paperback

**Book Code:** NI81

**Pages:** 540

**ISBN:** 8178330733

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



Starch is a group of poly saccharides, composed of glucopyranose units joined together by glucosidic linkages. Starch is also metabolized for energy in plants and animals, and is used to produce a large number of industrial products. Starch is processed to produce many of the sugars in processed foods. The biggest industrial non food use of starch is as adhesive in the paper making process. Other important fields of starch application are textiles, cosmetic and pharmaceutical uses. Starch can be obtained from maize, sorghum, roots and tubers such as tapioca, arrow root, potatoes etc. Starch truly serves as a multifunctional ingredient in the food industry. Starch is one of the most present biomaterials has witnessed significant developments over the years. By products are obtained in the manufacture of different types of starch such as maize gluten has a number of interesting possible uses in industry, zein (by product of corn processing) is used in the preparation of stable glass like plastics, modification of zein is used as adhesives and in the preparation of coating compositions for paper, the most important by product from wheat starch manufacture is gluten which is used in preparing diabetic foods, for feeding cattle, thickening agent in textile printing and so on. The Global starch market is likely to get respite from deceleration in its market growth, with growth poised to receive a new lease of life in the next few years. This book basically illustrates about the properties, structures, manufacturing process explained with flowcharts and diagrams, applications of starch and its derivatives etc. The major contents of the book are structure and chemical properties of starch, chemical composition, molecular structure, starch granule properties, water sorption and granule swelling as a function of relative humidity, factors affecting starch paste properties, the oxidation of starch etc. This is a unique book, concise, up to date resource offering a valuable presentation of the subject. This book contains processes of starch and its derivatives. This book is an invaluable resource for new entrepreneurs, industrialists, consultants, libraries.

---

## [Industrial Chemicals Technology Hand Book](#)

**Author:** NIIR Board

**Format:** Paperback

**Book Code:** NI85

**Pages:** 556

**ISBN:** 817833075X

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



Growth in demand for chemicals in developing countries is high leading to substantial cross border investment in the chemical sector. The chemical industry comprises the companies that produce industrial chemicals. Chemicals are used to make a wide variety of consumer goods, as well as thousands inputs to manufacturing, construction, and service industries. The applications of industrial chemical are in various fields like in organic chemicals, paint, varnishes, resins, petroleum, pigments, printing inks, acrylics polyesters engineering thermoplastics. The chemical industry itself consumes 26 percent of its own output. In modern age chemical industries have permeated most extensively in comparison with other industries and are progressing at a very rapid pace. Chemical industry is one of the oldest industries in India. It not only plays a crucial role in meeting the daily needs of the common man, but also contributes significantly towards industrial and economic growth of the nation. The chemical industry forms the backbone of the industrial and agricultural development and provides building blocks for downstream industries; it is an important constituent of the Indian economy. The chemical industry in India which generates almost 13% of total national export is growing annually at a growth rate anywhere between 10% and 12%. Global chemical production is growing and the growth is contributed by the chemical industry of developing countries. The book contains manufacturing processes, reactions, equipments details, process flow diagram of number of chemicals, which have huge industrial uses. The major contents of the book are iodine from oil well brines, lactic acid from corn sugar, modern production of chlorine and caustic soda, organic chemicals, chemicals derived from methane and so on. This book is very useful for new entrepreneurs, industrialists, consultants, research scholars, technical institutions, chemists and libraries. This book is recommended to all related to field of chemical process technology.

---

## [The Complete Technology Book on Chemical Industries](#)

**Author:** NIIR Board

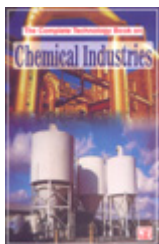
**Format:** Paperback

**Book Code:** NI89

**Pages:** 443

**ISBN:** 8178330687

**Price:** Rs. 975.00 US\$ 100.00



In modern age chemical industries have permeated most extensively in comparison with other industries and are progressing at a very rapid pace. Chemical Industry in India is one of the fastest growing industries under the Indian economy. The chemical industry comprises the companies that produce industrial chemicals. Central to the modern world economy, it converts raw materials into more than 70,000 different products. Chemicals have contributed in various sectors like food industry, fertilizers, perfumery, fragrance and flavour etc. Chemicals are used to make a wide variety of consumer goods, as well as thousands inputs to agriculture, manufacturing, construction, and service industries. There are numerous chemicals produced in chemical industry for example chloroform, caffeine, fertilizers, dyes, drug intermediates, herbicide, inorganic salts, copper sulphate, acetaldehyde etc. The chemical industry itself consumes 26 percent of its own output. The Chemical Industry in India is based on the idea of diversification. For example inorganic chemicals is the sector where the growth rate is near about 9% and the chemicals produced in this sector are mainly used in alkalis, fertilizers, etc. Depending on the product categories the chemical industry is divided in many other sectors like drugs and pharmaceuticals, fertilizers, fine chemicals like dyes and paints etc. The chemical industry in India which generates almost 13% of total national export is growing annually at a growth rate anywhere between 10% and 12%. This book majorly deals with the molecular formula, raw materials, properties, laboratory testing, manufacturing process explained with flow diagrams and uses of the chemicals. The major contents of the book are inorganic salts, inorganic chemicals, industrial gas, fertilizers, alum, caffeine, ceramic chemicals etc. This book covers the production of more than 100 chemicals for example acetanilide, methylamine, butylamine, linalol, phosphorous, salicylic acid etc. This book should be of great value to young chemical engineers and chemists who are just entering the field but those already practicing will find much of interest and use for broadening of their insight in to fields in which they are only marginally informed. It is hoped that this book will aid to young engineers, chemical, civil, mechanical and electrical as well as chemists, in understanding the value of chemical, the type of problems met in their production and method for solving these problems.

---

## [The Complete Technology Book on Fine Chemicals](#)

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

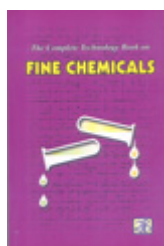
**Format:** Paperback

**Book Code:** NI126

**Pages:** 586

**ISBN:** 8178330563

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



Fine chemicals are the chemicals which are produced in comparatively small quantities and in relatively pure state. In chemical technology, a distinction is made between bulk chemicals, which are produced in massive quantities by standardized reactions, and fine chemicals, which are custom produced in smaller quantities for special uses. There is a very large number of fine chemicals that are produced, and thus the chemistries of producing them need to be flexible, whereas the atom economy is not as critical as for bulk chemicals. Some of the examples of fine chemicals are acetazolamide, albendazole, amitriptyline, azithromycin, benzothiazide, captopril, carbamazepine, chloroquine, etc. Owing to the small volume and often changing chemistry, fine chemicals production is more expensive, generates more waste and requires a higher research investment per kilogram. However, fine chemicals are produced in industrial quantities unlike research chemicals, which are produced only in the laboratory. Fine chemicals correspond to a distinct segment of the chemical industry, including low tonnage molecules (typically 10 to 20 Kt.). Pharmaceutical and Biological products, perfumes, photographic chemicals and electronic grade reagents are examples of fine chemicals. High purity reagents (99.999999% pure) are also classified as fine chemicals. Globally, the fine chemicals industry continues to be very fragmented in spite of some consolidation, partly due to the limited impact of economy of scale on the business. While, fine chemicals do offer limited albeit real opportunities for product differentiation, in contrast to commodity chemicals, they are unlike specialities. While, fine chemicals do offer limited albeit real opportunities for product differentiation, in contrast to commodity chemicals, they are unlike specialities, which offer much larger scope for standing out due to an enhanced contribution of technical services and application know how. This book is a comprehensive reference on one of the most exciting and challenging segments of the modern chemical industry, and a practical guide for developing and succeeding in the multibillion fine chemicals business. Some fundamentals of this book are synonyms, molecular formula and other properties of fine chemicals like albendazole, amitriptyline, azithromycin, benzothiazide, captopril, carbamazepine, chloroquine, etc. This book is an invaluable resource for technologists, professionals and those who want to venture in this field.

---

## [Drugs & Pharmaceutical Technology Handbook](#)

**Author:** NIIR Board

**Format:** Paperback

**Book Code:** NI130

**Pages:** 636

**ISBN:** 8178330547

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



Drugs and pharmaceutical industry plays a vital role in the economic development of a nation. It is one of the largest and most advanced sectors in the world, acting as a source for various drugs, medicines and their intermediates as well as other pharmaceutical formulations. India has come a long way in this field, from a country importing more than 95% of its requirement of drugs and pharmaceuticals; India now is exporting it even to developed countries. Being the intense knowledge driven industry, it offers innumerable business opportunities for the investors/ corporate the world over. The existence of well defined and strong pharmaceutical industry is important for promoting and sustaining research and developmental efforts and initiatives in an economy as well as making available the quality medicines to all at affordable prices. That is, it is essential to improve the health status of the individuals as well as the society as a whole, so that positive contributions could be made to the economic growth and regional development of a country. On the global platform, India holds fourth position in terms of volume and thirteenth position in terms of value of production in pharmaceuticals. The pharmaceutical industry has been producing bulk drugs belonging to all major therapeutic groups requiring complicated manufacturing processes as well as a wide range of pharmaceutical machinery and equipments. The modern Indian Pharmaceutical Industry is recent and its foundation was laid in the beginning of the current century. The pharmaceutical industry can be broadly categorised as bulk drugs, formulations, IV fluids and pharmaceutical aids (such as medical equipment, hospital disposables, capsules, etc.). Special feature of the pharmaceutical industry is a large number of manufacturers in the small scale sector. The government is also encouraging the SSI sector providing some incentives. The recent developments in the technology and R & D work in this field have led to the increased growth rate of industries and have established Indian Pharmaceutical industries in the international market. The content of the book includes information about properties, general methods of analysis, methods of manufacture, of different types of drugs and pharmaceuticals. Some of the fundamentals of the book are polymeric materials used in drug delivery systems , theoretical aspects of friction and lubrication , a convenient method for conversion of quinine to quinidine, formulation and evaluation of bio-available enteric-coated erythromycin and metronidazole tablets, extraction of virginiamycin, antipyretics and analgesics, column chromatographic assay of aspirin tablets, differentiating titration of phenacetin and caffeine, infrared spectra of some compounds of pharmaceutical interest etc. This book covers an intensive study on manufacturing, production, formulation and quality control of drugs and pharmaceuticals with technology involved in it. This book is an invaluable resource for technologists, professionals and those who want to venture in this field.

---

## [Handbook on Speciality Gums, Adhesives , Oils, Rosin & Derivatives, Resins, Oleoresins, Katha, Chemicals with other Natural Products](#)





**Author:** H.Panda

**Format:** Paperback

**Book Code:** NI149

**Pages:** 834

**ISBN:** 8178330253

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

The forest in India yields a large number of products, which play an important role in the economy of the country. Natural products may be extracted from tissues of terrestrial plants, marine organisms or microorganism fermentation broths. A crude (untreated) extract from any one of these sources typically contains novel, structurally diverse chemical compounds, which the natural environment is a rich source of. There are numerous product which is has a vital commercial applications for example gum karaya, locust bean gum, tamarind gum, rosin and rosin derivatives, turpentine and its derivaties, tall oil and its derivatives, essential oil of deodar, essential oils of cinnamum species and many more. Gum is any of a number of naturally occurring resinous materials in vegetative species. Various essential oils are also obtained from natural resources like deodar, Juniperus recurvavar, Suamata, Cinnamum species, agar wood etc. Tall oil products find use in many product applications because of their economy and ready availability. Tall oil is more like a chemical product with a constant and dependable supply and a steady price. It has a large number of applications like; adhesives, carbon paper, cement addition agent, detergents, drawing oils, fungicides, lubricants, soaps, rubber additives, surface coating etc. Phenolic adhesives continue to be the most significant adhesives for the production of weather resistant wood products. In terms of volume of trade, revenue and employment potential, the minor forest products have surpassed the traditional major forest products viz, timber, firewood, pulp, wood etc. Aromatic and medicinal plants are one the major resource from forests; the medicinal plants have been used since ancient times for the treatment of human ailments. Rosin, also called colophony is a solid form of resin obtained from pines and some other plants, mostly conifers, produced by heating fresh liquid resin to vaporize the volatile liquid terpene components. It is semi transparent and varies in color from yellow to black. At room temperature rosin is brittle, but it melts at stove top temperatures. It chiefly consists of different resin acids, especially abietic acid. Oleoresin is a naturally occurring mixture of oil and a resin extracted from various plants, such as pine or balsam fir. Over three quarters of the world population relies mainly on plants and plant extracts for health care. Natural products have evolved to encompass a broad spectrum of chemical and functional diversity. It is this diversity, along with their structural complexity, that enables small natural molecules to target a nearly limitless number of biological macromolecules and often to do so in a highly selective fashion. Because of these characteristics, natural products have seen great success as therapeutic agents. However, this vast pool of compounds holds much promise beyond the development of future drugs. This book makes an attempt to provide information of chemical nature, physical properties, manufacturing process, purification, applications, and compatibility of gums, adhesives, oils, rosin & derivatives, resins, oleoresins, katha, chemicals with other natural products. This book contains chapter on rosin and rosin derivatives, esterification of methylolated rosin, turpentine and its derivaties, tall oil and its derivatives, tall oil in liquid soaps, essential oils of cinnamum species, utilization of tannin from waste conicer barks, katha production in Tarai area of Uttar Pradesh, adhesives for wood based on natural polyphenolic substance, etc. This book contains process of forest based products like Gums, Resins, Oleoresins, Essential Oils and other natural products obtained from Indian forests. It gives an insight of richness and vastness of the forest wealth. This book is first of its kind, which covers comprehensive treasure of information on a wide variety of products. This is very resourceful



book for students, growers and marketing agencies, country where there is rich flora and fauna awaiting proper exploitation, production and utilization.

# [The Complete Book on Distillation and Refining of Petroleum Products \(Lubricants, Waxes and Petrochemicals\)](#)

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

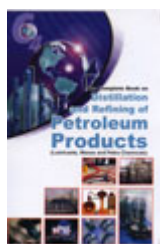
**Format:** Paperback

**Book Code:** NI152

**Pages:** 496

**ISBN:** 8186623973

**Price:** Rs. 975.00 US\$ 100.00



The most dynamic industry of the century is the petroleum and petrochemicals industry. It has taken the fundamental knowledge of chemistry and chemical engineering and transformed itself from a simple processing industry for fuel and lubricants to an extremely complex chemical process industry which has branched out into synthetic rubber, plastics, fertilizers and many other fields. Petroleum (crude oil) is a mixture of different hydrocarbons. Many useful products can be made from these hydrocarbons. The fractions are separated from one another using a process called fractional distillation. This process is based on the principle that different substances boil at different temperatures. The applications of distillation in petroleum industry are quite varied. The assaying of crude oils and the evaluation many petroleum products depend on distillation. Petroleum products obtained from processes such as distillation often need supplementary purification. Refining is a process of purification of products by means of chemical process. Chemical engineering and petroleum processing have in a very real sense grown up together. Studies on fluid flow, heat transfer, distillation, absorption, and the like were undertaken and applied to wide variety of materials because of need in the petroleum processing field. The largest share of oil products is used as energy carriers: various grades of fuel oil and gasoline. Heavier (less volatile) fractions can also be used to produce asphalt, tar, paraffin wax, lubricating and other heavy oils. Refineries also produce other chemicals, some of which are used in chemical processes to produce plastics and other useful materials. Hydrogen and carbon in the form of petroleum coke may also be produced as petroleum products. Petrochemicals have a vast variety of uses. The use of petroleum hydrocarbons to make synthesis gas has made petroleum and natural gas the world main source of ammonia, the source of almost all nitrogen fertilizers. While petroleum product demand in the western world is relatively stagnant, for developing countries, particularly those in Asia, demand is booming. It is all about growing populations and their escalating need for energy. Some of the fundamental of the book are the nature of petroleum, crude oil processing, distillation in the petroleum industry, refining of lubricating oils, petrolatum, and waxes, residue fluidized catalytic cracking, chemical thermodynamics of petroleum, benefits of biodiesel produced from vegetable oil, petroleum products used as fuel oils, manufacture of asphalt from petroleum, petroleum waxes, chlorinated waxes, synthesis gas etc. The book presents information and data which will help oil companies, large scale users of commercial petroleum products in efficient storage, handling and utilization of these products. Different formulae, processes for the production of petroleum products are given in this book. This will be very useful book for new entrepreneurs, existing units, technocrats, researchers, institutional libraries etc.

---

## [Handbook on Fine Chemicals, Vitamins, Amino Acids and Proteins](#)



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

**Format:** Paperback

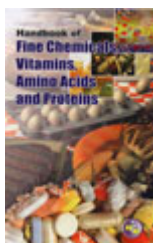
**Book Code:** NI159

**Pages:** 608

**ISBN:** 8186623965

**Price:** Rs. 1,450.00 US\$ 150.00

Fine chemicals are the chemicals which are produced in comparatively small quantities and in relatively pure state. In chemical technology, a distinction is made between bulk chemicals, which are produced in massive quantities by standardized reactions, and fine chemicals, which are custom produced in smaller quantities for special uses. Amino acid is any organic acid which has one or more substituent amino groups. In many instances the amino acid is more readily isolated from proteins than by resolution of the synthetic product. For the purpose of obtaining the best yields, it is always desirable to use protein material which is especially rich in the amino acid which is to be isolated. Some of the examples of amino acid are glycine, d glutamic acid, l tyrosine, l tryptophane, l hydroxyproline, thyroxine, serine, d lysine etc. Large quantities of potential protein rich foods of vegetable origin, e.g., oil seed meals and pulses, are available in the country and by suitable processing and fortification with vitamins and minerals, it should be possible to prepare, on a large scale, low cost processed protein foods which can be used as supplements to the diets of low income groups of the population. There are two forms of vitamin A; vitamins A and A2. All mammals, birds and fish which have been investigated, utilize vitamin A. Vitamin A requirements of animals other than mammals are less well known. Birds apparently need vitamin A in an amount of magnitude as mammals. It vitamin B1 is present in many plants. Vegetable, fruits and nuts contain small amounts; ripe peas and beans are rich sources; but vitamin B1 is found outside bran coats of grains (rice) and in yeast. Vitamin B2 (Riboflavin) is very widely distributed over the entire animal and plant kingdom. It seems that each and every animal and plant cell contains small amounts. Regular dietary intake of riboflavin is necessary for all members of the animal kingdom and for some microorganisms. Vitamin B6 as a free base is colourless crystalline powder, has a slightly bitter taste and melts at 160 degree Celsius. Of the entire living world only man, the other primates, the guinea pig a few microorganisms are known to require an external supply of vitamin C. Some of the fundamentals of the book are the constitution and synthesis of the amino acids, methods of analysis and reactions of the amino acids and proteins, production of protein isolate from groundnut, production of protein isolate from groundnut, chemical constitution of vitamin b2: degradation reactions, vitamin b6 (pyridoxine), effect of different treatments on vitamin c and microbial sterility of canned drumstick (moringa oleifera), conversion of provitamins d to vitamins d, compound and species specificity of known vitamins d, the group of vitamins e, vitamin p, physiology of plants and microorganisms etc. The aim of this book is to present in a single volume an up to date account of the manufacture of Fine Chemicals, Vitamins, Amino Acids and Proteins. The book includes several new information which comprise important threads in the industrial total fabric. This book contains the constitution and synthesis of the Amino Acids, the Isolation of the Amino Acids from Proteins, the preparation of Amino Acids and Proteins, Vitamins and Fine Chemicals with Method of analysis and reactions etc. The book is very helpful for new entrepreneurs, technocrats, researchers, institutional libraries etc.



---

[Directory/ Database/ List of Pharmaceutical & Drugs Companies in India \(4th Edition\)](#)



**Format:** CD-Rom

**Book Code:** NID68

**Price:** Rs. 5,135.00 **US\$** 150.00

Offline Business directory is the best thing in today's business world. If you are searching for Buyers, then this Directory/Database is the perfect tool for you. By having the right business leads, you would be able to have immediate communication with prospective businesses, partners and customers through this boundless list of Pharmaceutical & Drugs Companies in csv excel format. We offer an extensive suite of Directories/ database to assist you in reaching the right businesses and people quickly and easily. Business Directories are used for sales planning, finding Buyers and marketing research to perform business analysis. With our company database/Directory, you will have access to company list. You will find a business list consisting of company contact details. We compiled list of companies in excel format to give you access to over hundred thousands of major & minor businesses and companies. From small business to Corporate Houses, our data is complete with business contact information to help you connect with the right companies or buyers. This database collection is a great resource for those suppliers who offer their goods and services to Pharmaceutical & Drugs Companies like, Packaging Material Suppliers, Drug Suppliers, Pharma Chemical Suppliers, Plant & Machinery Suppliers, Office Equipment Suppliers, Office Furniture Suppliers, Mobile Companies, Raw Material Suppliers, Advertisement Agencies, Office Stationery Suppliers, Transporters, Courier Companies, IT, Software Companies, Labour Contractors, Hospitals, Clinics & Medical Stores etc. Information in this database Contains over 20,000 records of Pharmaceutical & Drugs Companies. Details Includes: Company Name (20,000), Postal Address (20,250), City, Postal Code, Contact Person (6,000), Phone (13,300), E-mail (7,200), Website (2,300), Fax (5,700) and Description. Note: All Records does not contain all fields of information. However, maximum information has been incorporated. Format: MS Excel



---

## [The Complete Book on Biodegradable Plastics and Polymers \(Recent Developments, Properties, Analysis, Materials & Processes\)](#)



**Author:** NIIR board

**Format:** Paperback

**Book Code:** NI165

**Pages:** 672

**ISBN:** 8178330350

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



Biodegradable plastics made with plant based materials have been available for many years. The term biodegradable means that a substance is able to be broken down into simpler substances by the activities of living organisms, and therefore is unlikely to persist in the environment. There are many different standards used to measure biodegradability, with each country having its own. The requirements range from 90 per cent to 60 per cent decomposition of the product within 60 to 180 days of being placed in a standard composting environment. They may be composed of either bio plastics, which are plastics whose components are derived from renewable raw materials, or petroleum based plastics which contain additives. Biodegradability of plastics is dependent on the chemical structure of the material and on constitution of the final product, not just on the raw materials used for its production. Polyesters play a predominant role as biodegradable plastics due to their potentially hydrolysable ester bonds. Bio based polymers are divided into three categories based on their origin and production; polymer directly extracted from biomass, polymers produced by classical chemical synthesis using renewable biomass monomer and polymers produced by microorganisms or genetically modified bacteria. In response to public concern about the effects of plastics on the environment and in particular the damaging effects of sea litter on animals and birds, legislation is being enacted or is pending in many countries to ban non degradable packing, finishing nets etc. This book basically deals with biodegradable plastics developments and environmental impacts, hydro biodegradable and photo biodegradable, starch synthetic aliphatic polyester blends, difference between standards for biodegradation, polybutylene succinate (pbs) and polybutylene, recent developments in the biopolymer industry, recent advances in synthesis of biopolymers by traditional methodologies, polymers, environmentally degradable synthetic biodegradable polymers as medical devices, polymers produced from classical chemical synthesis from bio based monomers, potential bio based packaging materials, conventional packaging materials, environmental impact of bio based materials: biodegradability and compostability, etc. Environmentally acceptable degradable polymers have been defined as polymers that degrade in the environment by several mechanisms and culminate in complete biodegradation so that no residue remains in the environment. The present book gives thorough information to biodegradable plastic and polymers. This is an excellent book for scientists engineers, students and industrial researchers in the field of bio based materials.

---

## [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.

## (with Process & Formulations) 2nd Revised Edition

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

**Format:** Paperback

**Book Code:** NI185

**Pages:** 616

**ISBN:** 9788178331614

**Price:** Rs. 1,675.00 US\$ 150.00



An adhesive is a material used for holding two surfaces together. In the service condition that way adhesives can be called as “Social” as they unite individual parts creating a whole. A useful way to classify adhesives is by the way they react chemically after they have been applied to the surfaces to be joined. There is a huge range of adhesives, and one appropriate for the materials being joined must be chosen. Gums and resins are polymeric compounds and manufactured by synthetic routes. Gums and resins largely used in water or other solvent soluble form for providing special properties to some formulations. More than 95% of total adhesive used worldwide are based on synthetic resins. Gums and resins have wide industrial applications. They are used in manufacture of lacquers, printing inks, varnishes, paints, textiles, cosmetics, food and other industries. Increase in disposable income levels, rising GDP and booming retail markets are propelling growth in packaging and flexible packaging industry. Growth of disposable products is expected to increase, which leads to increase in consumption of adhesives in packaging industry. The global value of adhesive resins market is estimated to be \$11,339.66 million and is projected to grow at a CAGR of about 4.88% in coming years. Rapid urbanization coupled with growing infrastructure and real estate construction projects is projected to further fuel demand for adhesives in India. This handbook covers photographs of plant & machinery with supplier’s contact details and manufacturing aspects of various adhesives, glues & resins. The major contents of the book are glues of animal origin, fish glues, animal glues, casein glues & adhesives, blood albumen glues, amino resin adhesives, cyanoacrylate adhesives, epoxy resin adhesives, phenolic resin adhesives, polychloroprene resin adhesives, polysulfide sealants & adhesives, resorcinolic adhesives, furan resin adhesives, lignin adhesives, polyamide adhesives, rosin adhesive, tannin adhesives, terpene based adhesives, starch adhesives, acrylic adhesives and sealants, pressure sensitive adhesives, hot melt adhesives, alkyd resins, acrylic modified alkyd resins, alkyd –amino combinations based on neem oil, amino resins, carbohydrate modified phenol- formaldehyde resins, epoxy resins etc. It will be a standard reference book for professionals, entrepreneurs, those studying and researching in this important area and others interested in the field of adhesives, glues & resins technology.

---

## Selected Formulary Book on Cosmetics, Drugs, Cleaners, Soaps, Detergents, Dentrices and Depilatories

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

**Format:** Paperback

**Book Code:** NI189

**Pages:** 720

**ISBN:** 9788190439800

**Price: Rs. 1,500.00 US\$ 150.00**

Cosmetics are substances used to enhance the appearance or odor of the human body. These are products that are created for application on the body for the purpose of cleansing, beautifying or altering appearance and enhancing attractive features. But cosmetics are not the same thing as medicines and cosmetics cannot be used to alter a body functions or performance. Beauty cosmetic products that are manufactured in India include an extensive range of makeup cosmetics and toiletries like skin creams and lotions, perfumes, lipsticks and lip gloss, nail varnish, toothpastes, deodorants and eye and face makeup products to cite a few examples. A chemical depilatory is a cosmetic preparation used to remove the hair from the skin on the human body. The depilatories industry is comprised of companies primarily concerned with the manufacturing, distribution, and retailing of hair removal products.

Depilatories are considered cosmetic products used to remove unwanted hair on the surface of the skin, and typically come in cream, gel, aerosol, lotion, or powdered form. Indian cosmetics market is reportedly growing at 15 to 20% annually. Drugs are usually distinguished from endogenous biochemical by being introduced from outside the organism. Drugs and pharmaceutical industry plays a vital role in the economic development of a nation. It is one of the largest and most advanced sectors in the world, acting as a source for various drugs, medicines and their intermediates as well as other pharmaceutical formulations. India has come a long way in this field, from a country importing more than 95% of its requirement of drugs and pharmaceuticals; India now is exporting it even to developed countries. Soaps and Detergents are cleaning products that have become an essential part in our daily lives. Soaps are mainly used as surfactants for washing, bathing, and cleaning, but they are also used in textile spinning and are important components of lubricants. Cleaning products play an essential role by safely and effectively removing dirt, germs and other contaminants, and thus promote a hygienic lifestyle. Toilet soaps account for the largest single share of about 10% in FMCG (fast moving consumer good) market. The toilet market is getting saturated at a high penetration level of 98% and is growing at a very modest rate. The toilet soap, once only an urban phenomenon, has now penetrated practically in all areas including remote rural areas. The incremental demand flows from population increase and rise in the usage norm impacted as it is by a greater concern for hygiene. Increased sales revenues would also expand from up gradation of quality or per unit value. The market is littered over with several leading national and global brands and a large number of small brands which have limited markets. Some of the fundamentals of the book are cosmetics and drugs, ocean bathing salt, oxygen bathing salt, medical bathing salts, carlsbad well, freichenhall kreuznach, hallein well, sodium thiosulphate plus acid, bath water, prophylactic face waters, kummerfelds (face) water sulphur, colloidal or finely, alcoholic sulphur hair lotion, preparation for head massage, scalp stimulant, hair wave concentrate, hair setting concentrate liquid, hair fixative brilliantine, non greasy brilliantine, hair fixative cream, hair fixative perfumes, hair oil, soap less shampoo, soap less shampoo powder, cleansers, soaps and detergents etc. 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. This book present several hundred advanced product formulations for household, industrial and other applications. This book will be an invaluable resource to development chemists looking for leads in the formulation of a wide range of



products.

## [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.

---

## [The Complete Book on Biotechnology Based Bulk Drugs](#)

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

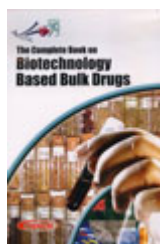
**Format:** Paperback

**Book Code:** NI194

**Pages:** 488

**ISBN:** 9788190439879

**Price:** Rs. 1,050.00 **US\$** 125.00



Biotechnology has played an essential role in the development of the healthcare chemical industries. The range of product includes diagnostic, prophylactic and therapeutic agents. The discovery of a potentially active compound starts a sequence of exhaustive chemical and biological testing that may culminate in manufacture of the agent or an improved analog. The role of biotechnology in this complex path to regulatory approval and marketing is diverse. Biotechnology is a field of applied biology that involves the use of living organisms and bioprocesses in engineering, technology, medicine and other fields requiring bio products. Biotechnology also utilizes these products for manufacturing purpose. Some of the examples of drugs produced through biotechnology are penicillin, lincomycin, streptomycin, tylosin, peptide antibiotics, cephalosporins, etc. Modern use of similar terms includes genetic engineering as well as cell and tissue culture technologies. Biotechnology draws on the pure biological sciences and in many instances is also dependent on knowledge and methods from outside the sphere of biology. Conversely, modern biological sciences are intimately entwined and dependent on the methods developed through biotechnology and what is commonly thought of as the life sciences industry. The development of biotechnology is taking place in almost all fields of human life. The recent advances in the field of basic genetics have opened up new vistas, potentials and possibilities. Some of the fundamentals of the book are the pharmaceutical industries, marketing strategy, common features in the evolution of products and processes, process technology fermentation, product recovery, new trends in biotechnology, penicillins, biosynthesis and regulation of thienamycin, olivanic acids and epithienamycins, aminoglycoside antibiotics, streptidine and deoxystreptamine, streptomycin, neomycin, paromomycin, ribostamycin and butirosin gentamicin, micronomicin and sisomicin, tylosin, peptide antibiotics, current applications of peptides, blasticidin S: an agricultural antibiotic bleomycin and bestatin: peptides used in anticancer therapy etc. The present book contains process of biotechnology based bulk drugs like penicillin, B lactam antibiotics, aminoglycoside antibiotics, peptide antibiotics, anti cancer agents, lincomycin etc. This is very resourceful book for entrepreneurs, technocrats, research scholars, libraries etc.

---

## [Phenolic Resins Technology Handbook](#)



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

**Format:** Paperback

**Book Code:** NI197

**Pages:** 584

**ISBN:** 9788190568500

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



Phenolic resins are obtained by the reaction of phenols with aldehydes. The simplest representative of these types of compounds, phenol and formaldehyde, are by far most important. Phenolic resins are mainly used in the production of circuit boards. The development of synthetic resins for surface coating applications has usually followed the use of similar material in the plastic industry. One of the first synthetic resins ever used commercially, both in plastics and in surface coatings was the phenolic resin. Phenolic resins result aldehyde with or without modification. Phenol resin bonded wood materials; particle boards (PB), plywood, fiber board (FB) and glued wood construction element are used for outdoor construction and in high humidity areas because of the high water and weathering resistance of the phenolic adhesive bond and high specific strength. The competitiveness and development of the wood working industry are of utmost importance for the development for thermosetting plastics. This industry is the largest consumer of urea melamine and phenol resins. Phenolic laminates are made by impregnating one or more layers of a base material such as paper, fiberglass or cotton with phenolic resin and laminating the resin saturated base material under heat and pressure. The resin fully polymerizes (cures) during this process. The base material choice depends on the intended application of the finished product. Paper phenolics are used in manufacturing electrical components such as punch through boards and household laminates. Glass phenolics are particularly well suited for use in the high speed bearing market. Other applications of phenolic resins are in chemical equipments, fibers, socket putties, photo resists, tannins, brush putties, etc. Good performance at a reasonable cost has long been an important selling point for phenolic resins, especially in applications such as wood bonding and insulation, where discoloring and other drawbacks can be overlooked because of cost savings. Hence demand of phenolic resins is growing rapidly. This book basically deals with general reaction of phenols with aldehydes, the resoles, curing stages of resoles, kinetics of a stage reaction, chemistry of curing reactions, kinetics of the curing reaction, the novolacs, decomposition products of resites, acid cured resites, composition of technical resites, mechanisms of rubber vulcanization with phenolic resins, thermosetting alloy adhesives, vinyl phenolic structural adhesives, nitrile phenolic structural adhesives, phenolic resins in contact adhesives, chloroprene phenolic contact adhesives, nitrile phenolic contact adhesives, phenolic resins in pressure sensitive adhesives, rubber reinforcing resins, resorcinol formaldehyde latex systems etc. The present book covers manufacturing processes of phenolic resins. New entrepreneurs, technocrats, research scholars can get good knowledge from this book.

---

## [Soaps, Detergents and Disinfectants Technology Handbook](#)

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

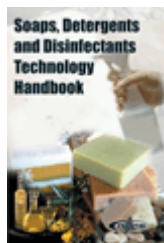
**Format:** Paperback

**Book Code:** NI198

**Pages:** 680

**ISBN:** 9788190568517

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



Soaps and detergents are used frequently in our daily life. We use them to wash our hands and clean our clothes without ever really paying attention to how they work. Beneath the plain white surface of a bar of soap lies an intriguing history and a powerful chemistry. It has been said that amount of soap and detergent consumed in a country is a reliable measure of its civilizations. There was a time when these products were luxury; now it is a necessity. A disinfectant or agent that frees from infection is ordinarily a chemical agent which kills disease germs or other harmful microorganisms and is applied to inanimate objects. The specific way in which a disinfectant agent is used is dependent on both the desired objective and the infectious agent present. The term detergent by itself refers specifically to laundry detergent or dish detergent, as opposed to hand soap or other types of cleaning agents. Detergents are commonly available as powders or concentrated solutions. Detergents work because they are amphiphilic partly hydrophilic (polar) and partly hydrophobic (non polar). Their dual nature facilitates the mixture of hydrophobic compounds (like oil and grease) with water. Because air is not hydrophilic, detergents are also foaming agents to varying degrees. Completely non polar solvents known as degreasers can also remove hydrophobic contaminants but may not dissolve in water because of a lack of polar elements. Soaps are mainly used as surfactants for washing, bathing, and cleaning, but they are also used in textile spinning and are important components of lubricants. Soap is a mixture of sodium salts of various naturally occurring fatty acids. Soaps and detergents are very similar in their chemical properties. However, there is a significant difference between them; soaps are produced from natural products, and detergents are synthetic, or manmade. The market is expected to grow at rates ranging from under 4% to around 4.5%. These are very modest rates considering that the lifestyles not only of urbanites, but even of well off rural folks are changing at a very high pace. The analysts are expecting the industry to continue to grow in both the industrialized as well as developing nations. Some of the fundamentals of the book are technology of soap making, washing of saponified soap, plant for total soap making operation, construction materials for soap making plants, earth bleaching of oils, chemical bleaching, fatty acids, manufacture of framed soaps, manufacture of chips and flakes, manufacture of milled bars, the mazzoni process, floating soap bars, mixing of soap, chemicals used in soaps & detergents, alkylolamides, alkylolamides in shampoo formulations, chemistry of the alkylolamides, mono alkylolamides, di alkylolamides, pure dialkylolamides, phosphoxylated alkylolamides, sulphated alkylolamides, disinfectants and antiseptics, dry cleaning agents, etc. The present book contains formulae, processes of different types of soaps, detergents and disinfectants. These products have good demand in domestic as well as in International market. So there is a very good scope for new entrepreneurs to venture into this field. This book is an invaluable resource for entrepreneurs, technocrats and for those who want to diversify in to this field.

---

[Directory/Database/ List of Chemical Industries/ Companies in India \(6th Edition\)](#)



**Format:** CD-Rom

**Book Code:** NID113

**Price:** Rs. 6,254.00 **US\$** 200.00

Offline Business directory is the best thing in today's business world. If you are searching for Buyers, then this Directory/Database is the perfect tool for you. By having the right business leads, you would be able to have immediate communication with prospective businesses, partners and customers through this boundless list of Chemical Industries/ Companies in India in csv excel format. We offer an extensive suite of Directories/ database to assist you in reaching the right businesses and people quickly and easily. Business Directories are used for sales planning, finding Buyers and marketing research to perform business analysis. With our company database/Directory, you will have access to company list. You will find a business list consisting of company contact details. We compiled list of companies in excel format to give you access to over hundred thousands of major & minor businesses and companies. From small business to Corporate Houses, our data is complete with business contact information to help you connect with the right companies or buyers. This database collection is a great resource for those suppliers who offer their goods and services to Chemical Industries/ Companies like, Industries, Chemical Suppliers, Chemical Distributor, R & D Laboratories, Packaging Material Suppliers, Plant & Machinery Suppliers, Office Equipment Suppliers, Office Furniture Suppliers, Mobile Companies, Raw Material Suppliers, Advertisement Agencies, Office Stationery Suppliers, Transporters, Courier Companies, IT, Software Companies & Labour Contractors etc. [Chemicals, (Fine, Industrial, Laboratory, Organic, Inorganic, Solvents, Cleaning Agents, Additives, Pharmaceuticals) Dyes & Dyes Intermediates, Pigments, Natural Colour, Dyestuff, Explosives, Flavours & Food Additives, Plant & Machinery, Parts, Processing Plants, Suppliers Etc. ] Information in this database contains over 99,000 records of Chemical Industries in India. Details Includes: Company Name (99,000), Postal Address (98,000), City, Postal Code, Contact Person (86,000), Phone (97,000), E-mail (93,000), Website (25,200), Fax (63,800) and Description. Note: All Records does not contain all fields of information. However, maximum information has been incorporated. Format: MS Excel



---

## [The Complete Technology Book on Industrial Adhesives](#)

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

**Format:** Hardcover

**Book Code:** NI208

**Pages:** 592

**ISBN:** 9788178331119

**Price: Rs.** 1,675.00 **US\$** 150.00

Adhesives were utilized in a sophisticated manner even in ancient times. Recent years have seen the rapid development of adhesive bonding as an economic and effective method for the fabrication of components and assemblies. The great many types of adhesives are currently in use and there is no adequate single system of classification for all products. The adhesives industry has generally employed classifications based on end use, such as metal to metal adhesives, wood adhesives, general purpose adhesives, paper and packaging adhesives etc. An adhesive or formulation is generally a mixture of several materials. The extent of mixture and the ratio usually depend upon the properties desired in the final bonded joint. The basic materials may be defined as those substances, which provide the necessary adhesive and binding properties. The type of adhesive material is easier to define and usually falls into three categories; thermosetting resins, thermoplastic resins and elastomeric resins. A thermosetting system, 100 percent reactive when in a pure state, the epoxies are very desirable and more widely used than any other chemical type. Epoxy is one of the newer types and has penetrated more fields of manufacturing operations in a shorter space of time than any of its predecessors. The many catalysts used with epoxies produce systems of variable properties. The most common are the aromatic amines and cyclic anhydrides. The phenolics or phenol formaldehyde resins are formed by the condensation reaction of phenol and formaldehyde. The phenolic resins have been used extensively in the lamination of plywood and in filament wound structures. There are two basic classes of phenolic resins resoles and novalacs, and both begin as phenol alcohols. When combined or alloyed with other adhesive systems, they become excellent structural adhesives and are widely used in this manner throughout the aerospace industry. The vinyl polymers do not stand alone as a structural adhesive, but hundreds of adhesives are formulated by the use of this class of polymer. The vinyls are important to adhesive bonding not only from the adhesive standpoint, but because the films derived from these substances are widely used as vacuum bags, slip sheets, etc. The more widely used ones are polyvinyl chloride, polyvinyl alcohol, and polyvinyl fluoride. There are numerous kinds of adhesives used in different industries; polyvinyl acetate wood adhesives, aminoresin wood adhesives, phenolic resin wood adhesives, cyanoacrylate adhesives, hot melt adhesives, water based adhesives etc. The market for adhesives is comprised of thousands of end uses. The realm of market applications expands as new end uses keep developing, driven by the need for new and innovative attachment solutions. When looking at the total market, adhesives account for about 75% of the volume consumed. This book basically deals with adhesive properties and general characteristics, adhesive materials and properties, adhesives types, thermoplastic adhesives, thermosetting adhesives, rubber resin blends, properties of basic adhesives types, acrylics acrylic acid diesters, allyl diglycol, carbonate, animal glues, blood albumen, butadiene styrene rubbers, butyl rubber and polyisobutylene casein, cellulose derivatives, cellulose acetate, acetate butyrate cellulose, caprate cellulose, nitrate (nitrocellulose or pyroxylin), ethyl cellulose, hydroxy ethyl cellulose, methyl cellulose and sodium carboxy methyl cellulose, ceramic or refractory inorganic adhesives cyanoacrylates, epoxy adhesives, epoxy nylon, epoxy polyamide, epoxy polysulphide, epoxy polyurethane, fish glue, furanes etc. The present book covers the manufacturing processes of different industrial adhesives with their formulae. It is hoped that the book can serve to new entrepreneurs, technocrats and existing units to the



technology of adhesive and guide them to a useful understanding of the wide variety of adhesives which exist today.

# Biopesticides Handbook

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

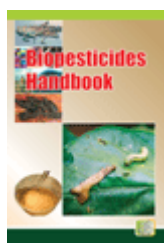
**Format:** Hardcover

**Book Code:** NI210

**Pages:** 544

**ISBN:** 9788178331133

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



Biopesticides are certain types of pesticides derived from such natural materials as animals, plants, bacteria, and certain minerals. Agricultural pesticides, properly used, are essential in supplying the food requirements of the world ever growing population. The use of synthetic pesticides affects the health of human being. The indiscriminate use of pesticides has adversely affected the health of the soil. The residual pesticides in the soil not only affect the soil quality but also the water quality, as they get leached into the ground water. Due to these reasons, role of biopesticides are very important for sustainable agriculture. The use of biopesticides for sustainable agriculture is a complex issue that at times is difficult to comprehend and plan. Biopesticides are usually inherently less toxic than conventional pesticides. They generally affect only the target pest and closely related organisms, in contrast to broad spectrum, conventional pesticides that may affect organisms as different as birds, insects, and mammals. They often are effective in very small quantities and often decompose quickly, thereby resulting in lower exposures and largely avoiding the pollution problems caused by conventional pesticides. Biopesticides, key components of integrated pest management (IPM) programmes, are receiving much practical attention as a means to reduce the load of synthetic chemical products being used to control plant diseases. In most cropping systems, biological pesticides should not necessarily be viewed as wholesale replacements for chemical control of plant pests and diseases, but rather as a growing category of efficacious supplements that can be used as rotation agents to retard the onset of resistance to chemical pesticides and improve sustainability. In organic cropping systems, biopesticides can represent valuable tools that further supplement the rich collection of cultural practices that ensure against crop loss to diseases. Some of the examples of biopesticides are triazino benzimidazol, thiophene sar, pyrazoles, hydroxyacetophenones, benzoylphenylureas, thiadiazolo S triazine etc. It is observed that India occupies a comparatively better position in the arena of biopesticides; in terms of growth of usage, percentage share of the total pesticide market and also in research publications. The driving forces behind this progress are identified as huge research infrastructure (universities and bio control labs) and favourable public support system/policies. Subsequently, it delves on strategies to incorporate the promotion of biopesticides into rural development efforts like recognition of the huge traditional knowledge base and use of biopesticides developed using indigenous technologies. Some of the fundamentals of the book are synthesis of triazino benzimidazol as 1 biopesticides, synthesis and pesticidal activities of thiadiazolo S triazine and imidazol, synthesis and antimicrobial activities of pyrazoles, effects of penconazole on plasma membrane, metabolism of diclofop methyl, bleaching herbicides stimulate maize HMGR activity, soil transformation of acetochlor, propanil degrading amidase activity, inhibition of BTX B binding by RH 3421, KDR type resistance in German cockroach etc. This is the first book of its kind which provides different parameters about biopesticides. The book will not only be resourceful for new entrepreneurs but will also help the technocrats, research scholars and those who willing to know more about biopesticides.

# [The Complete Book on Organic Farming and Production of Organic Compost](#)

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

**Format:** Hardcover

**Book Code:** NI213

**Pages:** 448

**ISBN:** 9788178331157

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



India is an agro based country. It ranks 2nd in agricultural products manufacturing in the world. So organic farming plays an important role in agro field. India has many natural resources of various organic compounds and so it is an excellent opportunity to produce sufficient quantity of organic foods to meet the global demand. There is a bright future for organic farming to export its quality product. Organic farming is a form of agriculture that excludes the use of synthetic fertilizers and pesticides, plant growth regulators, livestock feed additives, and genetically modified organisms. This type of farming is not new to Indian farming community. Several forms of organic farming are being successfully practiced in diverse climate, particularly in rain fed, tribal, mountains and hill areas of the country. The popularity of organic farming is gradually increasing and now organic agriculture is practiced in almost all countries of the world, and its share of agricultural land and farms is growing. The present book contains the organic farming management, production and uses of various organic compounds, which are well known and also for agriculture for their worldwide use. Compost serves as a growing medium, or a porous, absorbent material that holds moisture and soluble minerals, providing the support and nutrients in which most plants will flourish. Use of organic manure is extremely essential for better crop productivity and maintaining the fertility of soil to ensure sustainable production. This book basically deals with Indian agriculture before the green revolution, characteristics of sustainable agriculture, essential characteristics of organic farming, objectives of organic and conventional farming, livestock and human wastes, organic farming in rice, important regulations for organic farming, production of organic compost, effect of organic fertilizers in pongamia pinnata, significance of azospirillum and pseudomonas on growth of elucine crocana, chemical composition of banana, effect of azospirillum and phosphate solubilizing culture on quality of sugarcane, industrial wastes as sources of plant nutrients, role of organic fertilizer in upland crop production etc. The book provides you with comprehensive information on organic farming and related methods of farming. The book aims to provide you with many other profitable information about the method of obtaining sustainable agricultural and organic farming.

---

## [The Complete Book on Rubber Chemicals](#)



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

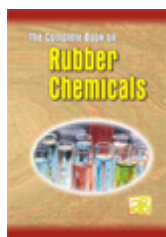
**Format:** Paperback

**Book Code:** NI220

**Pages:** 672

**ISBN:** 9788178331218

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



Rubber Chemicals are essential additives for the manufacture and quality improvement of rubber products such as automobile tires, rubber hoses, and quake absorbing rubbers. For rubber processing and compounding certain chemicals are required which are known as rubber chemicals. The primary requirement of adding different compounding ingredients to develop the different grades of rubber compounds to meet various service needs at an economic price and to provide certain desired physical properties to a considerable extent. Some of the examples of rubber chemicals are waxes, amines, thiazoles, silicone resins, alcohol, sulphuric acids, dithiocarbamates, phosphoric acid etc. They are mostly applicable for white and coloured rubber. They are generally used in rubber tubing, conveyor belt cover balloons, hot water bottles injection bottle caps, footwear related items etc. Indian rubber chemical industry has high growth potential triggered by increased consumption and steady growth in tyre and rubber industries. The speciality chemicals industry in India is projected to grow at 15-17 % per year to reach \$ 80-100 billion by 2020. The demand for rubber chemicals is on the rise. All major manufacturers have raised the prices of their products substantially. Massive investment is expected to flow into the rubber chemicals manufacturing sector in India in the coming years from both domestic and global players. The book covers different types, physical and chemical properties, applications of different rubber chemicals like waxes, synthetic organic chemicals, amines, silicones resins, releasing agents, stabilizers, solvents and many more. Some of the fundamentals of the book are synthetic hydrocarbon waxes, uses of amines in polymers, synthetic organic chemicals, analysis of specific anti-degradants, stabilization of halogenated polymers, anaerobic fermentations, the manufacture of sulfuric acid, analysis of dithiocarbamate esters, sodium hyposulfite (hydrosulfite), citric acid, gluconic acid, acetic acid, itaconic acid, kojic acid etc. Rubber chemicals have a huge potential growth in future and considering the importance of the chemical we have brought out this book which will be an invaluable resource to rubber chemical manufacturers, technocrats, researchers, consultants and new entrepreneurs.

---

## [Handbook on Cosmetics \(Processes, Formulae with Testing Methods\)](#)

**Author:** S.K. Singh

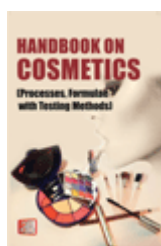
**Format:** Paperback

**Book Code:** NI224

**Pages:** 688

**ISBN:** 9788178331294

**Price:** Rs. 1,675.00 **US\$** 150.00



Cosmetics products are created for application on the body for the purpose of cleansing, beautifying or altering appearance and enhancing attractive features. It is not similar like medicines in addition to it cannot be used to modify the physique function or performance. The cosmetic Industry has witnessed rapid growth over the last couple of decades. Now a day the range of cosmetic and beauty products has widened tremendously. The use of cosmetics has increased exponentially not only among in females but the male population also indulges in their use. A wide range of chemical and natural materials is used in the formulation of cosmetic and toiletry preparations. Cosmetics like creams, gels, face powder, eye makeup, shaving cream, and colognes are used on a daily basis by both women and men. The Indian cosmetic Industry has witnessed rapid growth over the last couple of decades. In that time the range of cosmetic and beauty products in India has widened tremendously. Beauty products manufacturers in India mostly cater to the great demand for cosmetics and toiletries that fall into the low or medium price categories as the greatest demand in India has always been for these economically priced products. Bearing a long glowing heritage of cosmetic and beauty, aesthetic makeup products is being used since olden days and nowadays it appear like a booming economy in India which would be the largest cosmetic consuming country in a next few decades. While the demand of beautifying substances are growing day by day, a large number of local as well as international manufacturers gradually extend their ranges and products in different provinces of India. Industry sources estimate a rapid growth rate of 20% per annum. Some of the fundamentals of the book are regulation of cosmetic products, the relationship of cosmetic products to drugs, preservation of cosmetics, factors affecting preservation, organisms found in cosmetics, antiperspirants and deodorants, cleansing creams and lotions, baby toiletries, face powder manufacturing process, aerosol cosmetics, shaving preparations: soaps, creams, oils, and lotions, advantages and disadvantages of natural dyes, packaging cosmetic preparations, etc. The book covers formulae, manufacturing processes of various types of cosmetics like antiperspirants and deodorants, cleaning creams, lotions, emollient creams, baby toiletries, face powder, eye makeup and many more along with testing methods. This book will be great asset to new entrepreneurs, existing units, technocrats and technical institutions.

---

## [The Complete Book on Gums and Stabilizers for Food Industry](#)

**Author:** H. Panda

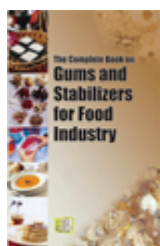
**Format:** Paperback

**Book Code:** NI231

**Pages:** 480

**ISBN:** 9788178331317

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



Gums are plant flours (like starch or arrowroot) that make foods & other products thick. Gums are used in foods for many reasons besides being used as a thickener. Gums are important ingredient in producing food emulsifier, food additive, food thickener & other gum products. The main reason for adding a gum or hydrocolloid to a food product is to improve its overall quality. India is the largest producer of gums specially guar gum products. Similarly stabilizers are an indispensable substance in food items when added to the food items, they smoothens uniform nature and hold the flavouring compounds in dispersion. Gum technology stabilizers are carefully controlled blends of various food ingredients. Most processed foods need some sort of stabilization at some point during production, transportation, storage and serving. The science and technology of hydrocolloids used in food and related systems has seen many new developments and advances over recent years. The breadth and depth of knowledge of gums and stabilizers has increased tremendously over the last two decades, with researchers in industry and academia collaborating to accelerate the growth. Gums as food constituents or as food additives can influence processing conditions in the following ways; retention of water, reduction of evaporation rates, alteration of freezing rates, modification of ice crystal formation and participation in chemical reactions. Some of the fundamentals of the book are functions of gum, typical food applications, gums in food suspensions, rheology and characters of gums, natural product exudates, flavor fixation, ice cream, ices and sherbets, gelation of low methoxyl pectin, seaweed extracts, microbial gums, transformation of collagen to gelatin, cellulose gums, dairy food applications, bakery product applications, analysis of hydrocolloids, gums in food products, general isolation of gums from foods, identification of gums in specific foods, group analysis and identification schemes, group identification methods, qualitative group analysis etc. This book contains rheology of gums, plant sheet gums, microbial gums, cellulose gums and synthetic hydrocolloids different stabilizers used in food industry. The book will be very resourceful to all its readers, new entrepreneurs, scientist, food technologist, food industries etc.

---

[\*\*Directory / Database of Corporate/Leading Companies/ Industries in Indian Chemicals & Allied Products \(with Financial Figures\) 4th Edition\*\*](#)

**Format:** CD-Rom

**Book Code:** NID171

**Price:** Rs. 6,490.00 **US\$** 225.00

Offline Business directory is the best thing in today's business world. If you are searching for Buyers, then this Directory/Database is the perfect tool for you. By having the right business leads, you would be able to have immediate communication with prospective businesses, partners and customers through this boundless list of All India Companies in csv excel editable format (easy sorting and filtering). We offer an extensive suite of Directories/ database to assist you in reaching the right and targeted businesses and people quickly and easily. Business, B2B&lrn;, Industrial Directories, Mailing List are used for sales planning, finding Buyers, Sector, Business House and marketing research to perform business analysis. With our company database/Directory, you will have access to company list, Corporate/Leading Companies, Small & Medium Enterprises (SME), you will find a business list consisting of company contact details. We compiled list of companies in excel format to give you access to over hundred thousands of major & minor businesses and companies. From small business to Corporate Houses, our data is complete with business contact information to help you connect with the right companies or buyers. This database collection is a great resource for Buyers and those suppliers who offer their goods and services to Trade, Manufacturing industry, Companies, Corporate Houses & Industries in India. Contains: 1993 records with following Information: Name of Company, Address, City, Pin Code, Phone, Fax, Email, Website. Name of Directors, Location of Plants, Project Capacity, Production, List of Major Raw Materials, Name of Products, Turnover, List of Major Raw Materials with their consumption quantity & Raw material value. Comparison amongst companies (Assets, Cash Flow, Cost as % of sales, Forex Transaction, Growth in Assets & Liabilities, Growth in Income & Expenditure, Income & expenditure, Liabilities, Liquidity Ratios, Profitability Ratio, Profits, Return Ratios, Structure of Assets & Liabilities (%), Working Capital & Turnover Ratios) (\*Wherever available) Note: All Records does not contain all fields of information. However, maximum information has been incorporated. Format: MS Excel



---

**[Emerging Opportunities in Booming INDIAN MAIZE PROCESSING INDUSTRY-Corn Starch, Dextrose, Liquid Glucose, Sorbitol, Gluten Meal, Germ Oil \(Why to Invest, Core Project Financials, Potential Buyers, Market Size & Analysis\)](#)**

**Author:** NPCS Team

**Format:** Paperback

**Book Code:** NI271

**Pages:** 33

**ISBN:** 9789381039434

**Price:** Rs. 35,400.00 **US\$** 650.00

The research report titled Emerging Opportunities in Booming INDIAN MAIZE PROCESSING INDUSTRY-Corn Starch, Dextrose, Liquid Glucose, Sorbitol, Gluten Meal, Germ Oil (Why to Invest, Core Project Financials, Potential Buyers, Market Size & Analysis) released by Niir Project Consultancy Services aims at providing a roadmap for investing into the sector by covering all the critical data required by any entrepreneur vying to venture into maize starch segment in India. 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. And before diversifying/venturing into any product, they wish to study the following aspects of the identified product: • Good Present/Future Demand • Export-Import Market Potential • Raw Material & Manpower Availability • Project Costs and Payback Period We at NPCS, through our reliable expertise in the project consultancy and market research field, have identified maize starch & allied products project, in the maize processing segment, which satisfies all the above mentioned requirements and has high growth potential in the Indian markets. And through this report we aim to help you make sound and informed business decision. The report contains all the data which will help an entrepreneur find answers to questions like: • Why I should invest in maize starch project? • Who are the customers of the product? • What will drive the growth of the product? • What are the costs involved? • What will be the market potential? The report embarks the analysis by enhancing the basic product knowledge of the capitalist by stating details like product definition, product uses & application, by-products & related products and a general overview of the product market. In here, the report provides an overview of the maize starch market along with a snapshot of maize crop market in India. The report further enlightens the entrepreneur about the potential buyers of the product, Maize starch which will help him identify his customers and place his product correctly. It is followed by a detailed analysis & enumeration of various factors that makes the case for investing in the sector along with graphical representation and forecasts of key consumer data. The report further assesses the market potential of the product by listing import-export markets of maize starch & allied products, recent developments in the sector and by providing sector outlook and market size. The report then turns the focus towards manufacturing side of maize starch & allied products. It provides project financials of a model project with specified product list and plant capacity along with excise and customs duty rates for maize starch for year 2013-14. It enumerates project information like raw materials required for manufacturing maize starch & allied products, manufacturing process, list of machinery and basic project financials. Project financials like plant capacity, costs involved in setting up of project, working capital requirements, payback period, projected revenue and profit are listed in the report. The above mentioned project details are for maize starch, sorbitol, dextrose, liquid glucose, vitamin C, germ oil and gluten feed plant. The report also provides key players in the segment with their contact details. Starch Industry is often termed as 'Sunrise Industry' due to its high growth potential and omnipresence across various other industries. This report helps an entrepreneur gain meaningful insights into the sector and make informed and sound business decision. Reasons for buying the report: • This report helps you to identify a profitable project for investing or diversifying into by throwing light to crucial areas like industry size, demand of the product and reasons for investing in the product • This report provides vital information on the product like



its definition, characteristics and segmentation • This report helps you market and place the product correctly by identifying the target customer group of the product • This report helps you understand the viability of the project by disclosing details like raw materials required, manufacturing process, project costs and snapshot of other project financials • The report provides a glimpse of important taxes applicable on the product • The report provides forecasts of key parameters which helps to anticipate the industry performance and make sound business decisions Our Approach: • Our research reports broadly cover Indian markets, present analysis, outlook and forecast for a period of five years. • The market forecasts are developed on the basis of secondary research and are cross-validated through interactions with the industry players • We use reliable sources of information and databases. And information from such sources is processed by us and included in the report

# [The Complete Book on Jute & Coir Products \(with Cultivation & Processing\)](#)

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

**Format:** Paperback

**Book Code:** NI287

**Pages:** 328

**ISBN:** 9789381039625

**Price:** Rs. 1,175.00 US\$ 125.00



Jute & Coir are one of the important fibre crops in India. India is the largest producer of Jute & Coir, contributing more than 60% of the total world production. Besides being the cheapest and the most important material of all textile fibers, Jute & Coir products are bio-degradable eco-friendly with numerous environmental advantages. The Demand of Jute and Coir Products are increasing rapidly because of their environment friendly nature. Jute is one of the most affordable natural fibers and is second only to cotton in amount produced and variety of uses of vegetable fibers. Jute fibers are composed primarily of the plant materials cellulose and lignin. Jute is the name of the plant or fiber that is used to make burlap, hessian or gunny cloth. Coir is a versatile natural fibre extracted from mesocarp tissue, or husk of the coconut fruit. Generally fibre is of golden color when cleaned after removing from coconut husk; and hence named as "The Golden Fibre". This Book aims at providing a thorough understanding and analysis of the Jute & Coir sector. The book discusses the overview of the Jute & Coir along with their Classification, Structure, Properties and Manufacturing Process of different products. Few major contents of the Book are Jute Cultivation, Coconut Cultivation, Jute Yarn, Sutli & Hessian Cloth, Jute Twine (Jute Rope), Gunny Bags, Jute Garments, Jute Shopping Bags, Gunny Bags (Jute Bags) Manufacturing, Handmade Paper from Jute, Environment Pollution and Effluent Treatment of Jute, Coir Fibre, Coir Pith, Biomass Charcoal Briquetting from Jute and Coir Waste, Rubberized Coir Mattresses, Coir Pith for Absorption and Recovery of Oil from Contaminated Sites, Application of Coir in Agricultural Textiles, Manufacture of Coir Corrugated Roofing Sheet, Coir Machinery Manufacturers, Importers of Coir Products. It also contains the Product and Machinery photographs, Name of Indian Buying Agents of Coir Products with their contact details. The purpose of this book is to provide information to new Entrepreneurs, Technocrats, Students and Professionals.

---

## 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](mailto:npcs.india@gmail.com) **Website:** [NIIR.org](http://NIIR.org)

Sat, 23 Sep 2017 23:57:40 +0530