

**Electroplating, Anodizing, Metal Treatment,
Powder Coating, Metal Finishing,
Electrochemicals, Electroplating Chemicals,
Ferrous, Non Ferrous Metals and Surface Coating
Technology**

[Electroplating, Anodizing & Metal Treatment Hand Book](#)

Author: NPCS Board of Consultants & Engineers

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Surface finishing is a broad range of industrial processes that alter the surface of a manufactured item to achieve a certain property. Currently, the trend is towards surface treatments. Surface engineering techniques are generally used to develop a wide range of functional properties, including physical, chemical, electrical, electronic, magnetic, mechanical, wear-resistant and corrosion-resistant properties at the required substrate surfaces. In general, coatings are desirable, or even necessary, for a variety of reasons including economics, material conservation, unique properties, or the engineering and design flexibility which can be obtained by separating the surface properties from the bulk properties. Surface engineered products thus increase performance, reduce costs, control surface properties independently of the substrate and medium, thus offering an enormous potential in the finishing Industry. Electro depositing of metals is a very significant industrial process. Electroplating is both an art and science. It entailed adhering a thin metal coating to an object by immersing it into an electrically charged solvent containing the dissolved plating metal. Electroplating served a number of functions, such as protecting from corrosion and wear, decoration, and electrical shielding. Anodizing most closely resembles standard electroplating. Anodizing or anodizing is an electrolytic passivation process used to increase the thickness of the natural oxide layer on the surface of metal parts. Anodizing increases corrosion resistance and wears resistance, and provides better adhesion for paint primers and glues than bare metal. Anodic films are most commonly applied to protect aluminium alloys. The aim of this handbook is to give the reader a perspective on several metal surface treatment techniques which are generally followed in the finishing Industry. This is a unique compilation and it draws together in a single source technical principles of surface science and surface treatments technologies of plastics, elastomers, and metals along with various formulae of bath solutions, current density, deposit thickness, manufacturing processes, various ingredients used in these processes. It is a very useful guide for the readers, engineers, scientists, practitioners of surface treatment, researchers, students, entrepreneurs and others involved in materials adhesion and processing.

The Complete Technology Book on Electroplating, Phosphating, Powder Coating and Metal Finishing (2nd Revised Edition)

Author: NIIR Board of Consultants & Engineers

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The Complete Technology Book on Electroplating, Phosphating, Powder Coating and Metal Finishing (2nd Revised Edition) Electroplating is the process of depositing a metal coating onto the surface of an object through the use of an electrical current. Electroplating has evolved into a highly complex process requiring a high level of precision and expertise. Phosphating is the process of converting a steel surface to iron phosphate. This is mostly used as a pretreatment method in conjunction with another method of corrosion protection. Powder coating is a finishing process in which a coating is applied electrostatically to a surface as a free-floating, dry powder before heat is used to finalize the coating. The powder can be made of any number of products: polyester, polyurethane, polyester-epoxy, straight epoxy, and acrylics. Metal finishing is the final step in the manufacturing process used to provide aesthetics and environmental protection. The electroplating market mostly is driven by the electronics and electrical industry and followed by the automotive industry. The demand for electroplating is rising rapidly from the end user industries which propel the growth of the market. The increasing demand for durable metals and growing use of adaptable manufacturing processes for a wide range of applications in the automotive, aerospace & defense, and electrical & electronics industries are likely to boost the demand for electroplating. With the growing demand for high-performance automobile components having excellent resistance to corrosion to enhance the appearance of exterior automobile parts, such as emblems, door handles, hood ornaments, and wheel rims, is driving the demand for electroplating and likely to continue owing to the increasing automobiles production in Asia-Pacific and other emerging economies in the Middle East & Africa. The zinc-nickel electroplating is one of the popular methods of electroplating in the automotive industry. The book cover various aspects related to different Electroplating, Phosphating, Powder Coating and Metal Finishing with their manufacturing process and also provides contact details of machinery suppliers with equipment photographs and plant layout. A total guide to manufacturing and entrepreneurial success in one of today's complete process of electroplating to metal finishing in industry. This book is one-stop guide to one of the fastest growing electroplating, phosphating, powder coating and

metal finishing industry, where opportunities abound for manufacturers, retailers, and entrepreneurs. The book serves up a feast of how-to information, from concept to purchasing equipment.

Surface Coating Technology Handbook

Author: NPCS Board of Consultants & Engineers

Format: Paperback

Book Code: NI216

Pages: 680

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Surface Coating is in use since long back is rapidly increasing with the development of civilization. There has been considerable impact in this field. Surface coating technology specializes in finding out engineering solutions to all the critical production problems related to coating the products on a continuous and consistent basis in your production plant. Surface coating can be defined as a process in which a substance is applied to other materials to change the surface properties, such as colour, gloss, resistance to wear or chemical attack, or permeability, without changing the bulk properties. Production of surface coating by any method depends primarily on two factors: the cohesion between the film forming substances and the adhesion between the film and the substrate. The development of science and technology revolutionized the surface coating industry in the progressive countries of the world. Surface coating technology involves the use of various types of products such as resins, oils, pigments, polymers, varnishes, plasticizers, emulsions, etc. We have completely replaced costly petroleum solvents with water and we get cheaper finished products with no evaporation loss and fire hazards. Paint is any liquid, liquefiable, or mastic composition which after application to a substrate in a thin layer is converted to an opaque solid film. It is most commonly used to protect, colour or provide texture to objects. The paint industry volume in India has been growing at 15% per annum for quite some years now. Varnish is one of the important parts of surface coating industry. They are used to change the surface gloss, making the surface more matte or higher gloss, or to provide the various areas of a painting with a more unified finish. Plasticizer plays an important role in the formation of polyvinylchloride (PVC). It is also used to plasticize the polymers. Polymers are divided into three different types; linear polymers, branched polymers and cross linked polymers. Polymer Energy system is an award winning, innovative, proprietary process to convert waste plastics into renewable energy. On the basis of value added, Indian share of plastic products industry is about 0.5% of national GDP. This book basically deals with principles of film formation, evaporation of solvent from a solution, chemistry and properties of drying and other oils, glyceride structure and film formation, the size of polymer molecules, processing of oil

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

Handbook on Electroplating with Manufacture of Electrochemicals

Author: Dr. H. Panda

Format: Paperback

Book Code: NI300

Pages: 484

ISBN: 9788178331706

Price: Rs. 1,975.00 US\$ 48.00

Handbook on Electroplating with Manufacture of Electrochemicals (Electroplating of Aluminium, Cadmium, Chromium, Cobalt, Copper, Gold, Iron, Lead, Nickel, Bright Nickel, Silver, Alloy, Platinum, Palladium, Rhodium, Bright Zinc, Tin, Plastics, Barrel, Electroless Plating, Metal Treatment with Formulation, Machinery, Equipment Details and Factory Layout) Electroplating and Electrochemicals, industries shimmering with growth and profitability potential, are truly riveting. Electroplating, an intricate process, involves the electrodeposition of a svelte metallic stratum onto diverse substrates utilizing electric currents. This technique entails submerging the intended object, the substrate, into an electrolytic bath brimming with metal ions and, through the application of an electric current, achieves a homogeneous metallic veneer. Conversely, Electrochemicals are birthed from electrochemical reactions. These intricate reactions are characterized by the transference of electrons among distinct compounds within an electrolytic milieu. Through the deliberate orchestration of electron flow, a plethora of chemical reactions are catalyzed, culminating in the synthesis of targeted chemicals. This methodology finds its application across a spectrum of industries, encompassing pharmaceuticals, agriculture, and energy storage sectors. The global electroplating market is expected to grow at a CAGR of 5.5%. The growth in the market can be attributed to the increasing demand for electroplated products from various end-use industries, such as automotive, electrical & electronics, aerospace & defense, Jewellery and machinery parts & components. In addition, the growing awareness about corrosion protection and decorative finishes is also propelling the growth of this market. This book contains in-depth information about Electrochemical Processing, Metal Surface Treatment, Electroless Plating, Electroplating, Electroplating of Aluminium, Cadmium, Chromium, Cobalt, Copper, Gold, Iron, Lead, Nickel, Bright Nickel, Silver, Alloy, Platinum, Palladium, Rhodium, Bright Zinc, Tin, Plastics, Barrel, Zinc Electroplating Brightener, Metal Treatments, Electrodeposition of Precious Metals, Electropolishing of Stainless Steel, Case Hardening, Electroless Coating of (Gold, Silver), Buffing and Industrial Metal Polishing Compounds, Aluminium, Gold and Its Compounds, Complex Salts of (Copper, Silver and Gold), Hydrides of Silicon,

Chemical and Electrochemical Conversion Treatments, Electrostatic Sealing. This book is an invaluable resource that comprehensively addresses all the essential topics in Electroplating and Electrochemicals. It is poised to become a standard reference for professionals and entrepreneurs interested in this field, offering a comprehensive understanding of Electroplating. Additionally, it will prove highly beneficial to consultants, new entrepreneurs, technocrats, research scholars, libraries, and existing businesses. The book offers a detailed roadmap that guides readers from the initial concept to the machinery acquisition phase.

About NIIR

NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

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

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