Surface Coating Technology Handbook

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About the Book

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.

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