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SHAMAR SKYLAR

Chemistry and Technology of Emulsion
Polymerisation John Wiley & Sons

Epoxy resins have been commercially available for about 45 years and now have many major industrial applications, especially where technical advantages warrant their somewhat higher costs. The chemistry of these resins is fascinating and has attracted study by

many very able scientists. The technological applications of the epoxy resins are very demanding and there are many new developments each year. The aims of the present book are to present in a compact form both theoretical and practical information that will assist in the study, research and innovations in the field of epoxy resin science and technology. The literature on epoxy resins is so vast that it is not possible to be encyclopaedic and that is not the function of the present text. It is the editor's hope that the selection of topics discussed will provide an up-to-date

survey. There is some overlap in the chapters but this is minimal and so each chapter is essentially self contained. As with all chemicals there are toxicological and other hazards. These are not dealt with in this text since a little knowledge can be dangerous, but material supplied can provide information regarding any safety precautions that may be necessary. However, often these precautions are not onerous and epoxy resins, or more specifically the hardeners, can be handled readily. It is hoped that this text will provide an up-to-date outline of the science and technology of epoxy resins and stimulate further research into unsolved problems and assist further technological developments.

Chemicals from coal Springer

Surfactants are used throughout industry as components in a huge range of formulated products or as effect chemicals in the production or processing of other materials. A detailed understanding of the basis of their activity is required by all those who use surfactants, yet the new graduate or postgraduate chemist or chemical engineer will generally have little or no experience of how and why surfactants work. Chemistry & Technology of Surfactants is aimed at new graduate or postgraduate level chemists and chemical engineers at the beginning their industrial careers and those in later life who become involved with surfactants for the first time. The book is a straightforward and practical survey of the chemistry of surfactants

and their uses, providing a basic introduction to surfactant theory, information on the various types of surfactant and some application details. This will allow readers to build on their scientific education the concepts and principles on which the successful use of surfactants, across a wide range of industries, is based.

Chemical and Biochemical Aspects John Wiley & Sons

Many excellent volumes have been written on the chemistry of cellulose and its derivatives. Judging by the number of conferences which have been assembled to deal with the topic, cellulose and its derivatives continue to arouse great scientific interest. Matching this interest has been the development in copolymer science and technology. In both

instances the driving force has been the search for products having useful, new or interesting properties. It appeared inevitable that these two concepts would be brought together at some time in the research and development of cellulosic copolymers. That time has arrived. In assembling this text our aim was to present an informative account of the chemistry and technology of cellulosic copolymers. As such, we intended that the contents be of interest to all those concerned with the production and use of cellulosic products whether in academic or industrial circles. Sections of the text should be of value in undergraduate and post-graduate teaching, provided the student is given guidance in following the text. The volume is divided into eight chapters,

each dealing with factors which are relevant to an understanding of cellulosic copolymers. Each chapter carries its own bibliography and is reasonably self-contained.

Chemistry and Technology of Soft Drinks and Fruit Juices The Chemistry and Technology of Magnesia

Soft drinks and fruit juices are produced in almost every country in the world and their availability is remarkable. From the largest cities to some of the remotest villages, soft drinks are available in a variety of flavours and packaging. The market for these products continues to show a remarkable potential for growth. The variety of products and packaging types continues to expand, and among the more significant developments in recent years has been the increase in

diet drinks of very high quality, many of which are based on spring or natural mineral water. This book provides an overview of the chemistry and technology of soft drinks and fruit juices. The original edition has been completely revised and extended, with new chapters on Trends in Beverage Markets, Fruit and Juice Processing, Carbohydrate and Intense Sweeteners, Non-Carbonated Beverages, Carbonated Beverages, and Functional Drinks containing Herbal Extracts. It is directed at graduates in food science, chemistry or microbiology entering production, quality control, new product development or marketing in the beverage industry or in companies supplying ingredients or packaging materials to the beverage industry.

Green Chemistry and Technology

Academic Press

Carbodiimides play an important role as condensation agents in the synthesis of polypeptides, polynucleotides, polysaccharides and numerous other chemical transformations. Chemistry and Technology of Carbodiimides is the first book to examine both the chemistry and technology of carbodiimides. This book provides a comprehensive and in-depth coverage of the synthesis and reactions of this industrially important class of chemicals while focusing on industrial applications, including the \$M-sectors of biochemical synthesis, pharmaceuticals, polymers, ceramics, and herbicides. Written by a well-known authority in the field this book will prove a valuable reference tool for anyone working in this area of chemistry.

Springer Science & Business Media

The use of lubricants began in ancient times and has developed into a major international business through the need to lubricate machines of increasing complexity. The impetus for lubricant development has arisen from need, so lubricating practice has preceded an understanding of the scientific principles. This is not surprising as the scientific basis of the technology is, by nature, highly complex and interdisciplinary. However, we believe that the understanding of lubricant phenomena will continue to be developed at a molecular level to meet future challenges. These challenges will include the control of emissions from internal combustion engines, the reduction of friction and wear in and continuing

improvements to lubricant performance and machinery, life-time. More recently, there has been an increased understanding of the chemical aspects of lubrication, which has complemented the knowledge and understanding gained through studies dealing with physics and engineering. This book aims to bring together this chemical information and present it in a practical way. It is written by chemists who are authorities in the various specialisations within the lubricating industry, and is intended to be of interest to chemists who may already be working in the lubricating industry or in academia, and who are seeking a chemist's view of lubrication. It will also be of benefit to engineers and technologists familiar with the industry who require a more fundamental

understanding of lubricants.

Chemistry and Technology of Lime and Limestone John Wiley & Sons

Soft drinks and fruit juices are produced in almost every country in the world and their availability is remarkable. From the largest cities to some of the remotest villages, soft drinks are available in a variety of flavours and packaging. The market for these products continues to show a remarkable potential for growth. The variety of products and packaging types continues to expand, and among the more significant developments in recent years has been the increase in diet drinks of very high quality, many of which are based on spring or natural mineral water. This book provides an overview of the chemistry and technology of soft drinks and fruit juices.

The original edition has been completely revised and extended, with new chapters on Trends in Beverage Markets, Fruit and Juice Processing, Carbohydrate and Intense Sweeteners, Non-Carbonated Beverages, Carbonated Beverages, and Functional Drinks containing Herbal Extracts. It is directed at graduates in food science, chemistry or microbiology entering production, quality control, new product development or marketing in the beverage industry or in companies supplying ingredients or packaging materials to the beverage industry.

Handbook of Green Chemistry and Technology Elsevier

Chemistry and Technology of Isocyanates is a comprehensive book on isocyanate chemistry and technology. It highlights the industrial applications of

diisocyanates in the manufacture of flexible and rigid foams, elastomers, coatings and adhesives; discusses ionomers used in water-based coatings, polymer networks and biomedical polymers; and reviews current and future environmental issues, including toxicity and safe handling of isocyanates, recycling of isocyanate derived polymers and monomers derived from natural products.

Chemistry and Technology of Plant Substances John Wiley & Sons

Incorporated

Provides an overview of the family of polyester polymers which comprise an important group of plastics that span the range of commodity polymers to engineering resins. It describes the preparation, properties and applications

of polyesters. Readers will also find details on polyester-based elastomers, biodegradable aliphatic polyester, liquid crystal polyesters and unsaturated polyesters for glass-reinforced composites. Presents an overview of the most recent developments. Explores synthesis, catalysts, processes, properties and applications. Looks at emerging polyester materials as well as existing ones. Written by foremost experts from both academia and industry, ensuring that both fundamentals and practical applications are covered.

Chemistry and Technology of Cyanate Ester Resins CRC Press

Sustainable development is now accepted as a necessary goal for achieving societal, economic and

environmental objectives. Within this chemistry has a vital role to play. The chemical industry is successful but traditionally success has come at a heavy cost to the environment. The challenge for chemists and others is to develop new products, processes and services that achieve societal, economic and environmental benefits. This requires an approach that reduces the materials and energy intensity of chemical processes and products; minimises the dispersion of harmful chemicals in the environment; maximises the use of renewable resources and extends the durability and recyclability of products in a way that increases industrial competitiveness as well as improve its tarnished image.

Wheat: Chemistry and Technology

Elsevier

Corn: Chemistry and Technology, Third Edition, provides a broad perspective on corn from expert agronomists, food scientists and geneticists. This encyclopedic storehouse of comprehensive information on all aspects of the world's largest crop (in metric tons) includes extensive coverage of recent development in genetic modification for the generation of new hybrids and genotypes. New chapters highlight the importance of corn as a raw material for the production of fuel bioethanol and the emerging topic of phytochemicals or nutraceutical compounds associated to different types of corns and their effect on human health, especially in the prevention of chronic diseases and cancer. Written by

international experts on corn, and edited by a highly respected academics, this new edition will remain the industry standard on the topic. Presents new chapters that deal with specialty corns, the production of first generation bioethanol, and the important relationship of corn phytochemicals or nutraceuticals with human health Provides contributions from a new editor and a number of new contributors who bring a fresh take on this highly successful volume Includes vastly increased content relating to recent developments in genetic modification for the generation of new hybrids and genotypes Contains encyclopedic coverage of grain chemistry and nutritional quality of this extensively farmed product Covers the production

and handling of corn, with both food and non-food applications

The Chemistry and Technology of Petroleum John Wiley & Sons

Annual cotton production exceeds 25 million metric tons and accounts for more than 40 percent of the textile fiber consumed worldwide. A key textile fiber for over 5000 years, this complex carbohydrate is also one of the leading crops to benefit from genetic engineering. Cotton Fiber Chemistry and Technology offers a modern examination of cotton chemistry and physics, classification, production, and applications. The book incorporates new insight, technological developments, and other considerations. The book focuses on providing the most up-to-date information on cotton fiber chemistry

and properties. Written by leading authorities in cotton chemistry and science, the book details fiber biosynthesis, structure, chemical composition and reactions, physical properties and includes information on biotech, organic, and colored cotton. The final chapters examine worldwide production, consumption, markets, and trends in the cotton industry. They also address environmental, workplace, and consumer risks from exposure to processing chemicals and emissions. Tracing the conversion of cotton fibers from raw materials into marketable products, Cotton Fiber Chemistry and Technology offers a complete overview of the science, technology, and economic factors that impact cotton production and applications today.

Chemistry and Technology of Surfactants

Elsevier

Principles of Industrial Chemistry Chris A.

Clausen III & Guy Mattson The first book

specifically designed to help the

academically trained chemist make the

transition to the real world of industry. It

uses process development as a general

theme to provide information normally

acquired only through on-the-job

training. The authors trace an industrial

chemical process from idea stage to fully

operational plant, discuss concepts in

unit operation and their applications,

and deal with such subjects as material

accounting, energy accounting, mass

transport, heat transfer, principles of

kinetics, separation methods,

instrumentation, economic concepts,

and patent procedures. A valuable

overview and insight into the industry.

1978 The Chemistry of Silica Solubility,

Polymerization, Colloid and Surface

Properties, and Biochemistry Ralph K.

Iler Silica, the major component of the

earth's solid surface, the constituent of

ordinary sand, and an essential material

in many forms of life, is involved in many

phases of modern technology and

science. Its role in human disease, aging,

and health is just beginning to be

explored. Here is a comprehensive

account of the basic chemistry involved

in a wide range of research and

development activities. Also a wealth of

information on production and

production control. Anyone involved with

R&D or production in the many diverse

fields and industries in which silica plays

a vital role—chemistry, biology,

medicine, agriculture, metallurgy, and mining—will find this book an invaluable reference. 1979 Fourth Edition of Faith, Keyes & Clark's Industrial Chemicals Frederick A. Lowenheim & Marguerite K. Moran The latest updated edition of a manual whose popularity for a quarter-century attests to its usefulness as a handy reference—a concise, quick-study source of essential information on 145 commonly used chemicals. For each of them, the book covers such subjects as reaction and yield or recovery; material and energy requirements by quantities; detailed explanation of the process involved (with illustrations and flow diagram); uses of the end product and important by-products; economics of production; specifics on properties, grades, containers and regulations; list

of manufacturers and plant locations; and volume of production and price ranges over the past two decades. A valuable time-saver. 1975

Flavor Chemistry and Technology
Elsevier

This book is a "world first", since the furfural industry has been traditionally secretive to the point of appearing shrouded in clouds of mystery. Even renowned encyclopedic works have published but scant and often erroneous information on the subject. Striking a healthy balance between theory and practice, the book leads the reader from reaction mechanisms and kinetics to the technology of making furfural by various old and new processes, using conventional raw materials or sulfite waste liquor. Detailed discussions of

means of increasing the yield are of great chemical and technological interest as well as of immense economic importance. From furfural proper, the treatise shifts to the fascinating field of wanted and unwanted by-products ranging from largely unutilized carboxylic acids to troublesome impurities such as 5-methyl furfural and 2-furyl methyl ketone, and then to extremely valuable serendipitous flavor compounds such as diacetyl and 2,3-pentanedione. A wide variety of derivatives are discussed; considerable space is devoted to polytetrahydrofuran, an important building block of stretchable synthetic fibers, while furan resins from both furfural and furfuryl alcohol are given the attention commensurate with their industrial

importance. Notable supplementary chapters cover the in-line measurement of furfural, the treatment of furfural waste water, and various aspects of corrosion. A chapter on the applications of furfural elaborates not only traditional uses in extracting petroleum and vegetable oils but also the sensational discovery that furfural is a highly effective "indirect nematocide". Without becoming toxic, it changes the microflora of the soil by stimulating bacteria antagonistic to nematodes, thereby reducing the nematode population to zero, at an unprecedented low price. It is believed that this application will be the principal outlet for furfural in the future. A comprehensive list of physical properties, some never published before, make the book an

indispensable companion for producers, users and researchers alike.

Advances in Potato Chemistry and Technology John Wiley & Sons

The 6th volume of Green Chemical Processing considers sustainable chemistry in the context of innovative and emerging technologies, explaining how they can support the “greening” of industry processes. The American Chemical Society’s 12 Principles of Green Chemistry are woven throughout this text as well as the series to which this book belongs.

Chemistry and Technology of Printing and Imaging Systems Wiley-Interscience

After epoxy resins and polyimides, cyanate esters arguably form the most well-developed group of high-

temperature, thermosetting polymers. They possess a number of desirable performance characteristics which make them of increasing technological importance, where their somewhat higher costs are acceptable. The principal end uses for cyanate esters are as matrix resins for printed wiring board laminates and structural composites. For the electronics markets, the low dielectric loss characteristics, dimensional stability at molten solder temperatures and excellent adhesion to conductor metals at temperatures up to 250°C, are desirable. In their use in aerospace composites, unmodified cyanate esters offer twice the fracture toughness of multifunctional epoxies, while achieving a service temperature intermediate between epoxy and bis-

maleimide capabilities. Applications in radome construction and aircraft with reduced radar signatures utilize the unusually low capacitance properties of cyanate esters and associated low dissipation factors. While a number of commercial cyanate ester monomers and prepoly mers are now available, to date there has been no comprehensive review of the chemistry and recent technological applications of this versatile family of resins. The aims of the present text are to present these in a compact, readable form. The work is primarily aimed at materials scientists and polymer technologists involved in research and development in the chemical, electronics, aerospace and adhesives industries. It is hoped that advanced undergraduates and

postgraduates in polymer chemistry and technology, and materials science/technology will find it a useful introduction and source of reference in the course of their studies.

Chemistry and Technology of Polyesters and Copolyesters Academic Press

Chemistry and Technology of Plant Substances: Chemical and Biochemical Aspects demonstrates the progress and promise of developing new chemical substances from renewable sources of chemical raw materials. The volume brings together new achievements in the field of research and processing of plant raw materials and the synthesis of natural compounds for the production of biologically active substances and drugs. The volume looks closely at the rational use of renewable raw materials, which is

the source of new compounds and intermediates for the chemical industry. It covers a wide range of problems associated with the use of the components of plants to produce new substances with a wide variety of purposes. According to the latest estimates, plants form about a million chemical substances. In some cases, plant products have pharmacological or biological activity that can be of therapeutic benefit in treating diseases. In addition, due to the structural diversity of plant material, chemical synthesis is easily reachable. Synthetic analogs of natural products with improved potency and safety can be prepared by chemical synthesis. Such synthetic analogs are safer for humans. Plant materials are often used as

starting points for drug discovery. Chemistry and Technology of Plant Substances: Chemical and Biochemical Aspects presents the theoretical trends and recent practical achievements on complex processing of plant-based raw materials. Low molecular weight components, isolated from plant material, are widely used in fine organic synthesis. High molecular weight polysaccharides of conifers and other greens, such as pectin and hemicellulose, are the basis for the creation of anticoagulants and other drugs. The range of research papers presented in the book is quite wide: from fundamental and applied problems of wood chemistry and organic synthesis to biological activity of natural compounds. The book provides valuable information

for those skilled in organic chemistry, chemical engineers, researchers and scientists as well as for faculty and upper-level students. This volume, *Chemistry and Technology of Plant Substances: Chemical and Biochemical Aspects*, was created on the initiative of Emanuel Institute of Biochemical Physics of the Russian Academy of Sciences (Moscow) and the Institute of Chemistry of Komi Scientific Center of Ural Branch of the Russian Academy of Sciences (Syktyvkar).

Oats Academic Press

This volume reflects the huge breadth and diversity in research and the application of industrial and engineering chemistry and cheminformatics. The book presents cutting-edge research developments and new insights that

emphasize the vibrancy of industrial and engineering chemistry and cheminformatics today. The first section of the book focuses on new insights in engineering chemistry while the second part looks at the promising future and novel approaches in chemical informatics, which has vast implications for industrial and pharmaceutical applications. Several chapters examine various industrial processes for emerging materials and determine practical use under a wide range of conditions, helping to establish what is needed to produce a new generation of materials.

Chemistry and Technology of

Silicones Academic Press

Starch: Chemistry and Technology, Second Edition focuses on the chemistry,

processes, methodologies, applications, and technologies involved in the processing of starch. The selection first elaborates on the history and future expectation of starch use, economics and future of the starch industry, and the genetics and physiology of starch development. Discussions focus on polysaccharide biosynthesis, nonmutant starch granule polysaccharide composition, cellular developmental gradients, projected future volumes of corn likely to be used by the wet-milling industry, and organization of the corn wet-milling industry. The manuscript also tackles enzymes in the hydrolysis and synthesis of starch, starch oligosaccharides, and molecular structure of starch. The publication examines the organization of starch

granules, fractionation of starch, and gelatinization of starch and mechanical properties of starch pastes. Topics include methods for determining starch gelatinization, solution properties of amylopectin, conformation of amylose in dilute solution, and biological and biochemical facets of starch granule structure. The text also takes a look at photomicrographs of starches, industrial microscopy of starches, and starch and dextrans in prepared adhesives. The selection is a vital reference for researchers interested in the processing of starch.

Chemistry and Technology of Isocyanates CRC Press

- Modern uses of traditional materials - 'Lime and Limestone' is a comprehensive and up-to-date presentation of the main

scientific and technological aspects of the quarrying, processing, calcining and slaking of lime and limestone products. It places emphasis on how the processes are designed to ensure that the products meet market requirements and comply with customer specifications. It describes authoritatively, and in detail, the current uses in the many market segments, including: - iron, steel and other metals, - building, construction and cement, - water, sewage and environmental protection, - chemicals, agriculture and

foodstuffs. It also addresses topical issues such as: environmental protection measures within the industry, toxicology, occupational health, storage, transportation, economic aspects, sampling, testing and analysis. The book maintains a good balance between scientific information - of use to technologists - and more general information - of value to production and commercial personnel, both within the lime and limestone industries and in the many industries that they serve.