

## **Global Xanthate Gum Market 2017 Dupont Danisco**

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Carbon Nanomaterial-Based Adsorbents for Water Purification  
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Fifty Materials That Make the World  
Stimulation Engineering Handbook  
Handbook of Flotation Reagents: Chemistry, Theory and Practice  
Emerging Eco-friendly Green Technologies for Wastewater Treatment  
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Gold Metallurgy and the Environment  
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### **Remediation of Heavy Metals in the Environment**

This publication provides the background and compiles the most recent research findings as well as detailing development activities relating to the development of radiation processed products made of natural polymers. Successes clearly indicate that the radiation processing of natural polymers has emerged as an exciting area where the unique characteristics of these polymeric materials can be exploited for a variety of practical applications in agriculture, healthcare, industry and the environment.

### **A New Generation Material Graphene: Applications in Water Technology**

### **Carbon Nanomaterial-Based Adsorbents for Water Purification**

This book provides practical information on obtaining and using a wide variety of plant based reagents for different sectors,

addressing the needs and challenges in a single resource. The chapters complement each other seamlessly and present contributions from reputed international researchers and renowned professionals from industry, covering the latest efforts in the field. The book serves as the starting point for future collaborations in the new area "Plant Based Green Chemistry" between research, industry, and education, covering large ecologic and economic applications: perfume, cosmetic, pharmaceutical, food ingredients, nutraceuticals, biofuels, or fine chemicals industries. This book is aimed at professionals from industries, academicians engaged in plant based green chemistry, researchers and graduate level students, but will also be useful to food technologists and students and researchers involved in natural products chemistry.

## **POSS-Based Polymers**

Rapid advances in technology require materials with improved property profiles. Polymer modification using grafting and crosslinking are key ways to achieve this in an economical way and without the need for developing new materials. Often widely disparate and in a number of references, practical information on polymer grafting and crosslinking is now available in one volume. Researchers seeking information that bridges the knowledge gap between the scientific principles and industrial applications of polymer crosslinking and grafting will find coverage on the basic science, the methodologies, and a focus on the specific techniques used in a variety of industrial applications such as automotive, laminates, paints, adhesives, and cable. Coverage also includes potential biomedical applications. Descriptions of analytical tools that can be used to evaluate the results are also included.

## **Advances in the Domain of Environmental Biotechnology**

This book is the result of remarkable contribution from the experts of interdisciplinary fields of Science with comprehensive, in-depth and up-to-date research and reviews. It describes the applications of date palm for food, medicine and the environmental sectors. Date palm is one of the oldest cultivated trees and its fruit has been a dietary staple around the world for many centuries. Date pulps contain dietary fibers and easily digestible sugars (70%), mainly glucose, sucrose and fructose. They also contain vitamins like biotin, thiamine, riboflavin, ascorbic and folic acid that are important for our body. The date palm fruit has been used in folk remedies for the treatment of various infectious diseases, cancer and immunomodulatory activity. Date stones and date palm leaves are freely and abundantly available biomass. Therefore, the renovation of agricultural biomass wastes into activated carbons for drinking water purification, wastewater treatment, treatment of dyes, and metal-ions from aqueous solution would add value to agricultural commodities which offer a solution to environmental problems as well as reduce the cost of waste disposal.

## **Advanced Polymers in Medicine**

Handbook of Flotation Reagents: Chemistry, Theory and Practice is a condensed form of the fundamental knowledge of chemical reagents commonly used in flotation and is addressed to the researchers and plant metallurgists who employ these reagents. Consisting of three distinct parts: 1) provides detailed description of the chemistry used in mineral processing industry; 2) describes theoretical aspects of the action of flotation reagents 3) provides information on the use of reagents in over 100 operating plants treating Cu, Cu/Zn, Cu/Pb, Zn, Pb/Zn/Ag, Cu/Ni and Ni ores. \* Looks at the theoretical aspects of flotation reagents \* Examines the practical aspects of using chemical reagents in operating plants \* Provides guidelines for researchers and engineers involved in process design and development

## **A System of Mineralogy**

As we know, rapid industrialization is a serious concern in the context of a healthy environment and public health due to the generation of huge volumes of toxic wastewater. Although various physico-chemical and biological approaches are available for the treatment of this wastewater, many of them are not effective. Now, there a number of emerging ecofriendly, cost-effective approaches utilizing microorganisms (bacterial/fungi/algae), green plants or their enzymes, and constructed wetland treatment systems in the treatment of wastewaters containing pollutants such as endocrine disrupting chemicals, toxic metals, pesticides, dyes, petroleum hydrocarbons and phenolic compounds. This book provides a much-needed, comprehensive overview of the various types of wastewater and their ecotoxicological effects on the environment, humans, animals and plants as well as various emerging and eco-friendly approaches for their treatment. It provides insights into the ecological problems and challenges in the treatment and management of wastewaters generated by various sources.

## **Handbook of Industrial Water Soluble Polymers**

The extracellular matrix (ECM) is an acellular three-dimensional network composed of proteins, glycoproteins, proteoglycans and exopolysaccharides. It primarily serves as a structural component in the tissues and organs of plants and animals, or forms biofilms in which bacterial cells are embedded. ECMs are highly dynamic structures that undergo continuous remodeling, and disruptions are frequently the result of pathological processes associated with severe diseases such as arteriosclerosis, neurodegenerative illness or cancer. In turn, bacterial biofilms are a source of concern for human health, as they are associated with resistance to antibiotics. Although exopolysaccharides are crucial for ECM formation and function, they have received considerably little attention to date. The respective chapters of this book comprehensively address such issues, and provide reviews on the structural, biochemical, molecular and biophysical properties of exopolysaccharides. These components are abundantly produced by virtually all taxa including bacteria, algae, plants, fungi, invertebrates and vertebrates. They include long unbranched homopolymers (cellulose, chitin/chitosan), linear copolymers (alginate, agarose), peptoglycans such as murein, heteropolymers like a variety of glycosaminoglycans

(hyaluronan, dermatan, keratin, heparin, Pel), and branched heteropolymers such as pectin and hemicellulose. A separate chapter is dedicated to modern industrial and biomedical applications of exopolysaccharides and polysaccharide-based biocomposites. Their unique chemical, physical and mechanical properties have attracted considerable interest, inspired basic and applied research, and have already been harnessed to form structural biocomposite hybrids for tailor-made applications in regenerative medicine, bioengineering and biosensor design. Given its scope, this book provides a substantial source of basic and applied information for a wide range of scientists, as well as valuable textbook for graduate and advanced undergraduate students.

## **Esterification of Polysaccharides**

Survey's the issues typically raised in discussions of sustainability and plastics Discusses current issues not covered in detail previously such as ocean litter, migration of additives into food products and the recovery of plastics Covers post-consumer fate of plastics on land and in the oceans, highlighting the environmental impacts of disposal methods Details toxicity of plastics, particularly as it applies to human health Presents a clear analysis of the key plastic-related issues including numerous citations of the research base that supports and contradicts the popularly held notions

## **A Comprehensive Guide to the Hazardous Properties of Chemical Substances**

This book provides a first comprehensive summary of acylation methods in a very practical manner. The coverage includes new developments not yet summarized in book form, and reviews spectroscopic methods, in particular FTIR- and NMR spectroscopy including two dimensional methods.

## **Biodegradation**

The deterioration of water quality and unavailability of drinkable water are pressing challenges worldwide. The removal of toxic organic and inorganic pollutants from water is vital for a clean environment, as a response to water scarcity. Adsorption-based water technologies are among the most widely used because of their high efficiency and low cost, without relying on a complex infrastructure. In recent years, carbon nanomaterials (CNMs), such as graphene and derivatives, carbon nanotubes, carbon nanofibers, nanoporous carbon, fullerenes, graphitic carbon nitride, and nanodiamonds have been extensively exploited as adsorbents due to their extraordinary surface properties, ease of modification, large surface area, controlled structural varieties, high chemical stability, porosity, low density, ease of regeneration, and reusability. This book provides a thorough overview of the state of the art in carbon nanomaterials as they are used for adsorption applications in water purifications, as well as addressing their toxicological challenges. This volume primarily explores the

fundamentals of adsorption, its mechanical aspects, synthesis and properties of CNMs, and adsorption performances of CNMs and their nanocomposites with organic and inorganic materials. Structural engineering and activation processes produce materials with enhanced adsorptive properties and separation efficiencies. Furthermore, the formation of CNMs with 2D and 3D macro-and microstructures and high porosities is a potential approach to improve adsorption performances and extend CNM use at the industrial level. The book also addresses important issues regarding these adsorbents that potentially affect future research and industrial applications of carbon-based nanoadsorbents in water security. Presents advances in multifunctional 3D superstructures of carbon nanomaterials and their composites for adsorption applications. Outlines the fundamentals on synthesis and characterization techniques of carbon-based nanostructures and their composites. Assesses the major toxicological challenges in using nanostructured materials as adsorbents for water purification.

## **Advances in Sustainable Polymers**

The design and development of dyes and chromophores have recently attracted much attention in various research fields such as materials, radiation curing, (laser) imaging, optics, medicine, microelectronics, nanotechnology, etc.. In this book, the recent research for the use of dyes and chromophores in polymer science is presented. The interaction of the visible light with the dyes or the selected chromophores is particularly important in different fields (e.g. for photovoltaic, display applications (LED), laser imaging or laser direct writing, green chemistry with sunlight induced photopolymerization etc.). This book gives an overview of the dyes and chromophores for all the important fields.

## **Extracellular Sugar-Based Biopolymers Matrices**

Following in the tradition of the "System of Mineralogy" introduced by Wiley in 1837, this one-of-a-kind reference brings mineralogy into the 21st century. It describes all of the over 3700 recognized mineral species. New features include emphasis on mineral structure, presenting descriptions of all the important species. New specially commissioned structure diagrams describe all the important mineral groups. All homologous species are classified and all polymorphic forms identified. Compact and convenient in one volume, it offers exceptional coverage on where minerals can be found and accurate, up-to-date references.

## **Pharmacognosy And Pharmacobiotechnology**

The book provides an up-to-date overview of the diverse medical applications of advanced polymers. The book opens by presenting important background information on polymer chemistry and physicochemical characterization of polymers. This

serves as essential scientific support for the subsequent chapters, each of which is devoted to the applications of polymers in a particular medical specialty. The coverage is broad, encompassing orthopedics, ophthalmology, tissue engineering, surgery, dentistry, oncology, drug delivery, nephrology, wound dressing and healing, and cardiology. The development of polymers that enhance the biocompatibility of blood-contacting medical devices and the incorporation of polymers within biosensors are also addressed. This book is an excellent guide to the recent advances in polymeric biomaterials and bridges the gap between the research literature and standard textbooks on the applications of polymers in medicine.

## **Nanostructured Materials for Treating Aquatic Pollution**

This book gives an overview of all the gold extraction processes along with their mechanistic study and environmental impact. Different approaches in gold extraction are discussed including traditional pyrometallurgy, amalgamation, leaching by cyanide or non-cyanide lixiviants and emerging bioleaching using micro-organisms, in detail.

## **Plant Based “Green Chemistry 2.0”**

This book highlights the implications of nanotechnology and the effects of nanoparticles on agricultural systems, their interactions with plants as well as their potential applications as fertilizers and pesticides. It also discusses how innovative, eco-friendly approaches to improve food and agricultural systems lead to increased plant productivity. Further, it offers insights into the current trends and future prospects of nanotechnology along with the benefits and risks and their impact on agricultural ecosystems. Nanomaterials in agriculture reduce the amount of chemical products sprayed by means of smart delivery of active ingredients; minimize nutrient losses in fertilization; and increase yields through optimized water and nutrient management. There is also huge potential for nanotechnology in the provision of state-of-the-art solutions for various challenges faced by agriculture and society, both today and in the future.

## **Polymer Grafting and Crosslinking**

Organics, metals and inorganics, industrial solvents, common gases, particulates, explosives, and radioactive substances are thoroughly examined for all facets of their primary characteristics - from toxicity and carcinogenicity to flammability and explosive reactivity to handling and disposal practices." "An indispensable reference for investigative and analytical chemists as well as professionals dealing with industrial hygiene, safety, hazardous waste, and compliance issues, this book also serves as a complement to major references."--Jacket.

## **The Scientific Basis of Flotation**

Chelation Therapy in the Treatment of Metal Intoxication presents a practical guide to the use of chelation therapy, from its basic chemistry, to available chelating antidotes, and the application of chelating agents. Several metals have long been known to be toxic to humans, and continue to pose great difficulty to treat. These challenges pose particular problems in industrial settings, with lead smelting known to be associated with hemopoietic alterations and paralyses, and the inhalation of mercury vapor in mercury mining being extremely detrimental to the central nervous system. Clinical experience has demonstrated that acute and chronic human intoxications with a range of metals can be treated efficiently by administration of chelating agents. Chelation Therapy in the Treatment of Metal Intoxication describes the chemical and biological principles of chelation in the treatment of these toxic metal compounds, including new chelators such as meso-2,3-dimercaptosuccinic acid (DMSA) and D,L-2,3-dimercapto-1-propanesulfonic acid (DMPS). Presents all the current findings on the potential for chelation as a therapy for metal intoxication Presents practical guidelines for selecting the most appropriate chelating agent Includes coverage on radionuclide exposure and metal storage diseases Describes the chemical and biological principles of chelation in the treatment of toxic metal compounds

## **Cellulose and Cellulose Derivatives**

The Most Detailed Resource Available on Points of Zero Charge With their work growing in complexity, chemists involved with surface phenomena-related projects have outgrown the common resources available to them on points of zero charge (PZC) of oxides. Reporting on a limited number of materials in a limited number of scenarios, these resources often leave scientists wondering if the variances reported in the results they depend upon are due to actual differences in properties among particular samples or due to differences between isoelectric points (IEP) and points of zero charges obtained by titration. Taking on the monumental task of building a complete reference, Marek Kosmulski, a leading authority in the field of surface chemistry (Hirsch index of 22), takes a new approach to provide chemists with the most detailed resource on the points of zero charge of oxides available to date. Surface Charging and Points of Zero Charge presents PZC data on well-defined specimens of materials sorted by trademark, manufacturer (commercial materials), location (natural materials), and specific recipe (synthetic materials). The text emphasizes the comparison between particular results obtained for different portions of the same or very similar material. Synthesizing information published in research reports over the past few decades, this invaluable reference: Characterizes materials in terms of thermochemical data, chemical composition (level of impurities), crystallographic structure, specific surface area (various methods), particular size, and morphology Provides additional references to more detailed sample characterization (SEM and TEM images, XRD patterns, and particle size distributions) Reviews the PZC and IEP--with all possible details regarding the method, type of instrument, and experimental conditions Pays special attention to correlations of the PZC and IEP with other physical quantities and properties, surface charging in mixed and nonaqueous solvents, surface charging at high ionic strengths, and ion-specificity in 1-1 electrolytes All available sources were used to obtain the data in this reference making it the definitive resource on PZC/IEP. Destined to

become a classic, *Surface Charging and Points of Zero Charge* points the way for further research with tried and true methods that help researchers avoid the doubt that can lead to countless hours of unnecessary research. Erratum for this volume can be found on the author's website.

## **Nanotechnology**

Covering a broad range of polymer science topics, *Handbook of Polymer Synthesis, Characterization, and Processing* provides polymer industry professionals and researchers in polymer science and technology with a single, comprehensive handbook summarizing all aspects involved in the polymer production chain. The handbook focuses on industrially important polymers, analytical techniques, and formulation methods, with chapters covering step-growth, radical, and copolymerization, crosslinking and grafting, reaction engineering, advanced technology applications, including conjugated, dendritic, and nanomaterial polymers and emulsions, and characterization methods, including spectroscopy, light scattering, and microscopy.

## **The Radiation Chemistry of Polysaccharides**

Many highly acclaimed and authoritative books on polymer science tend to focus on synthetic polymers. *Cellulose and Cellulose Derivatives* is the first authoritative book on the subject. It examines recent developments, with particular reference to cellulose (in aqueous alkali) and cellulose acetate. Packed with examples, the author takes an in-depth look at the topic, using the most reliable experimental data available. A comprehensive approach to the fundamental principles of cellulose and its derivatives in solution makes *Cellulose and Cellulose Derivatives* ideal reading for novices as well as experienced cellulose scientists. \* Outlines the theoretical fundamentals of cellulose and cellulose derivatives \* Presents comprehensive and reliable experimental results in figures and tables \* Highly illustrated and easy to read

## **Surface Charging and Points of Zero Charge**

Antimicrobial polymers are materials that prevent microorganism growth and are needed for many everyday applications from food packaging and water treatment to medicine and healthcare. This new book covers different areas of antimicrobial materials based on polymers including chitosan, polymers with ammonium and phosphonium groups, polymer nanofibers, carbon-based polymer Nanocomposites, polymeric and non-polymeric metal complexes, and biomimetic materials. By combining the information of different materials as well as antimicrobial action modes and applications within one source, the book provides a general summary of the field. *Polymeric Materials with Antimicrobial Activity* starts with a general introduction to antimicrobial polymers and presents the most common types of microorganisms (bacteria, fungi, yeast and

algae) along with the main areas of application of antimicrobial polymeric materials. Specific chapters then detail different polymer systems covering the fundamental issues of synthesis, characterization, physico-chemical properties and applications. With contributions from leading scientists the book is suitable for researchers in polymers, chemistry, biology and materials science interested in an overview of antimicrobial polymeric materials as well as the recent advances in their synthesis, properties and applications.

## **Hard and Soft Acids and Bases**

Phenolic compounds as a large class of metabolites found in plants have attracted attention since long time ago due to their properties and the hope that they will show beneficial health effects when taken as dietary supplements. This book presents the state of the art of some of the natural sources of phenolic compounds, for example, medicinal plants, grapes or blue maize, as well as the modern methods of extraction, quantification, and identification, and there is a special section discussing the treatment, removal, and degradation of phenols, an important issue in those phenols derived from the pharmaceutical or petrochemical industries.

## **Plastics and Environmental Sustainability**

## **Polymeric Materials with Antimicrobial Activity**

The rapid growth of industries has resulted in the generation of high volume of solid and liquid waste. Today, there is a need of Clean and Green technology for the sustainable waste management. Biochemical and Environmental Bioprocessing: Challenges and Developments explore the State-of-art green technologies to manage the waste and to recover value added products. Microbes play an important role in the bioremediation. Bioprocess engineering an interdisciplinary connects the Science and Technology. The bioconversion and bioremediation is essentially required for the management of various hazardous substances in the environment. This book will give an intensive knowledge on the application of Biochemical and Bioprocess technologies for the eco-friendly management of pollution. This book serves as a fundamental to the students, researchers, academicians and Engineers working in the area of Environmental Bioremediation and in the exploration of various bioproducts from waste. Features Reviews various biological methods for the treatment of effluents from Industries by using biomass and biopolymers. Highlights the applications of various bioreactors like Anaerobic Sequential Batch Reactor, Continuously stirred anaerobic digester, Up-flow anaerobic sludge blanket reactor, Fluidized and expanded bed reactors. Presents the cultivation of algae in Open Pond, Closed loop System, and Photo-bioreactors for bioenergy production. Discusses the intensified and integrated biorefinery approach by Microwave Irradiation, Pyrolysis, Acoustic

cavitation, Hydrodynamic cavitation, Electron beam irradiation, High pressure Autoclave reactor, Steam explosion and photochemical oxidation. Outlines the usage of microbial fuel cell (MFC) for the production bioelectricity generation in different modules Tubular MFC, Stacked MFC, Separate electrode modules Cutting edge research of synthesis of biogenic nanoparticles and Pigments by green route for the health care and environment management.

## **Veterinary Oncology**

## **Frontiers of Textile Materials**

This book provides a systematic overview of the processing and applications of sustainable polymers. The volume covers recent advances in biomedical, food packaging, fuel cell, membrane, and other emerging applications. The book begins by addressing different sections of biomedical application including use of carbohydrate-based therapeutics, nanohybrids, nanohydrogels, bioresorbable polymers and their composites, polymer-grafted nanobiomaterials for biomedical devices and implants, nanofibres, and others. The second part of this book discusses various processing and packaging materials for food packaging applications. The last section discusses other emerging applications, including using microbial fuel cells for waste water treatment, microfluidic fuel cells for low power applications, among others. This volume will be relevant to researchers working to improve the properties of bio-based materials for their advanced application and wide commercialization.

## **Biochemical and Environmental Bioprocessing**

K.J.Ives Professor of Public Health Engineering University College London Industrial application of the use of bubbles to float fine particles in water began before the beginning of this century, in the field of mineral processing. Such bubble flotation was applied very little outside mineral processing, until about 1960 when the dissolved air process, which has already had some success in the pulp and paper industry, was applied to water and wastewater treatment. The subsequent two decades saw not only a growth development for water and wastewater treatment, but also a growing cognisance of the similarities that existed with mineral processing flotation. Therefore the time seemed ripe in 1982 for a joint meeting between experts in these two major fields of flotation to put together the Scientific Basis of Flotation in the form of a NATO Advanced Study Institute. Attended by about 60 specialists, mainly post doctoral, from 17 countries, this Study Institute in residence for two weeks in Christ's College, Cambridge (UK) heard presentations from several international experts, principally the 8 co-authors of this book. The integration of the various scientific disciplines of physics, physical chemistry, colloid science, hydrodynamics and process engineering showed where the common basis, and occasional important differences, of

flotation could be applied to mineral processing, water and wastewater treatment, and indeed some other process industries (for example: pharmaceuticals, and food manufacture).

## **Fifty Materials That Make the World**

This book presents a unique collection of up-to-date applications of graphene for water science. Because water is an invaluable resource and the intelligent use and maintenance of water supplies is one of the most important and crucial challenges that stand before mankind, new technologies are constantly being sought to lower the cost and footprint of processes that make use of water resources as potable water as well as water for agriculture and industry, which are always in desperate demand. Much research is focused on graphene for different water treatment uses. Graphene, whose discovery won the 2010 Nobel Prize in physics, has been a shining star in the material science in the past few years. Owing to its interesting electrical, optical, mechanical and chemical properties, graphene has found potential applications in a wide range of areas, including water purification technology. A new type of graphene-based filter could be the key to managing the global water crisis. According to the World Economic Forum's Global Risks Report, lack of access to safe, clean water is the biggest risk to society over the coming decade. Yet some of these risks could be mitigated by the development of this filter, which is so strong and stable that it can be used for extended periods in the harshest corrosive environments, and with less maintenance than other filters on the market. The graphene-based filter could be used to filter chemicals, viruses, or bacteria from a range of liquids. It could be used to purify water, dairy products or wine, or in the production of pharmaceuticals. This book provides practical information to all those who are involved in this field.

## **Stimulation Engineering Handbook**

The book "Frontiers and Textile Materials will deal with the important materials that can be utilized for value-addition and functionalization of textile materials. The topics covered in this book includes the materials like enzymes, polymers, etc. that are utilized for conventional textile processing and the advanced materials like nanoparticles which are expected to change the horizons of textiles. The futuristic techniques for textile processing like plasma are also discussed.

## **Handbook of Flotation Reagents: Chemistry, Theory and Practice**

This highly readable textbook provides a comprehensive but concise overview of the principles of oncogenesis in veterinary medicine, discussing selected tumors in domestic animals in detail, and addressing cancer diagnostics and therapy. All chapters are illustrated with histological and radiological images to enhance readers' understanding. Accordingly, the book is a must-have reference guide for all graduate and advanced undergraduate students in Veterinary Medicine with a special

interest in oncology.

## **Emerging Eco-friendly Green Technologies for Wastewater Treatment**

This book provides in-depth coverage of environmental pollution sources, waste characteristics, control technologies, management strategies, facility innovations, process alternatives, costs, case histories, effluent standards, and future trends in waste treatment processes. It delineates methodologies, technologies, and the regional and global effects of important pollution control practices. It focuses on toxic heavy metals in the environment, various heavy metal decontamination technologies, brownfield restoration, and industrial, agricultural, and radioactive waste management. It discusses the importance of metals such as lead, chromium, cadmium, zinc, copper, nickel, iron, and mercury.

## **Chelation Therapy in the Treatment of Metal Intoxication**

## **Gold Metallurgy and the Environment**

This book reports the advances in the synthesis of new nanomaterials for the remediation of natural waters, groundwaters, and wastewaters. The authors describe synthetic routes for the assembly of different nanomaterials for the removal of contaminants by adsorption, catalytic degradation, and antibacterial activity. The hazardous effects of nanomaterials in aquatic ecosystems are discussed. This book presents the trends in the development of advanced technologies available in the market based on nanomaterials for more efficient water remediation. The authors also discuss sustainable management of water resources according to the new technologies developed and the improved efficiency of remediation processes.

## **Phenolic Compounds**

This book contains a collection of different biodegradation research activities where biological processes take place. The book has two main sections: A) Polymers and Surfactants Biodegradation and B) Biodegradation: Microbial Behaviour.

## **Handbook of Polymer Synthesis, Characterization, and Processing**

This volume's philosophy on quality control reflects the changing times within the industry by targeting non-service-company readers. It provides specific checklists and guidelines for safety meetings, conducting pre-and post-job inventories, job execution, fractioning fluid quality control, acidizing, quality control and equipment.

## **Dana's New Mineralogy**

The combination of functional polymers with inorganic nanostructured compounds has become a major area of research and technological development owing to the remarkable properties and multifunctionalities deriving from their nano and hybrid structures. In this context, polyhedral oligomeric silsesquioxanes (POSSs) have increasing importance and a dominant position with respect to the reinforcement of polymeric materials. Although POSSs were first described in 1946 by Scott, these materials, however, have not immediately been successful if we consider that, starting from 1946 and up to 1995, we find in the literature 85 manuscripts regarding POSSs; which means that less than two papers per year were published over 50 years. Since 1995, we observe an exponential growth of scientific manuscripts concerning POSSs. It is changing from an annual average of 20 manuscripts for the period 1995–2000 to an annual average of about 400 manuscripts, with an increase of 2800%. The introduction of POSSs inorganic nanostructures into polymers gives rise to polymer nanostructured materials (PNMs) with interesting mechanical and physical properties, thus representing a radical alternative to the traditional filled polymers or polymer compositions.

## **Clinical Applications of Magnetic Nanoparticles**

This book introduces materials and how advances in materials result in advances in technology and our daily lives. Each chapter covers a particular material, how the material was discovered or invented, when it was first used, how this material has impacted the world, what makes the material important, how it is used today, and future applications. The list of materials covered in this book includes stone, wood, natural fibers, metals, clay, lead, iron, steel, silicon, glass, rubber, composites, polyethylene, rare earth magnet, and alloys.

## **Dyes and Chromophores in Polymer Science**

Offering the latest information in magnetic nanoparticle (MNP) research, this book builds upon the success of the first volume and provides an updated and comprehensive review, from synthesis, characterization, and biofunctionalization to clinical applications of MNPs, including the diagnosis and treatment of cancers. The book captures some of emerging research area which was not available in the first volume. Good Manufacturing Practices and Commercialization of MNPs are also included. This volume, also written by some of the most qualified experts in the field, incorporates new developments in the literature, and continues to bridge the gaps between the different areas in this field.

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Natural and synthetic water soluble polymers are used in a wide range of familiar industrial and consumer products, including coatings and inks, papers, adhesives, cosmetics and personal care products. They perform a variety of functions without which these products would be significantly more expensive, less effective or both. Written for research, development and formulation chemists, technologists and engineers at graduate level and beyond in the fine and specialty chemicals, polymers, food and pharmaceutical industries, the Handbook of Industrial Water Soluble Polymers deals specifically with the functional properties of both natural and synthetic water soluble polymers. By taking a function based approach, rather than a “polymer specific” approach the book illustrates how polymer structure leads to effect, and shows how different polymer types can be employed to achieve appropriate product properties.

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