Reagents In Mineral Technology Dornet

Flocs in Water Treatment is the first of its kind - serving as a valuable aide-mémoire for scientists, process engineers and other professionals engaged in water treatment. The framework described in Flocs in Water Treatment can also be applied to aggregated solids found both in the natural environment, and within a broad range of industries. Flocs (aggregated solid matter) resulting from the combined influence of coagulation and flocculation play a vital role in solid-liquid separation processes. The design and operation of water treatment plants demands a proper understanding of the ways in which flocs affect treatment systems and how their properties can be manipulated to increase treatment efficiency. Flocs in Water Treatment provides a comprehensive account of the ways in which flocs are formed, their characterization, and how they behave in practice. Flocs are complex entities, whose properties defy easy description and measurement. In spite of this, the authors provide a clear and discerning account of the current state of knowledge; this is rooted in science and draws on many disciplines. Based on their experiences in research and the workings of full scale treatment plants, the authors offer candid advice on tasks such as the measurement of floc properties and guidance on problems involving the use of chemicals for controlling floc properties within treatment systems.

Mycotoxins are increasingly attracting attention at thegovernmental, public and

academic level worldwide, due to more frequent and serious contaminations of food and feedstuffs, which pose a serious threat to human health and animal production. This book reviews the latest research on mycotoxins that directly concern food safety, and especially focuses on detection technologies, risk assessment and control strategiescurrently being used in China. Gathering contributions from over 20 respected researchers, the book will benefit graduatestudents, researchers and management groups from various disciplines, including food science and technology, analytical chemistry, plant pathology, public health, etc.

This book gathers the various aspects of the porous polymer field into one volume. It not only presents a fundamental description of the field, but also describes the state of the art for such materials and provides a glimpse into the future. Emphasizing a different aspect of the ongoing research and development in porous polymers, the book is divided into three sections: Synthesis, Characterization, and Applications. The first part of each chapter presents the basic scientific and engineering principles underlying the topic, while the second part presents the state of the art results based on those principles. In this fashion, the book connects and integrates topics from seemingly disparate fields, each of which embodies different aspects inherent in the diverse field of porous polymeric materials.

Bioavailability refers to the extent to which humans and ecological receptors are exposed to contaminants in soil or sediment. The concept of bioavailability has recently

piqued the interest of the hazardous waste industry as an important consideration in deciding how much waste to clean up. The rationale is that if contaminants in soil and sediment are not bioavailable, then more contaminant mass can be left in place without creating additional risk. A new NRC report notes that the potential for the consideration of bioavailability to influence decision-making is greatest where certain chemical, environmental, and regulatory factors align. The current use of bioavailability in risk assessment and hazardous waste cleanup regulations is demystified, and acceptable tools and models for bioavailability assessment are discussed and ranked according to seven criteria. Finally, the intimate link between bioavailability and bioremediation is explored. The report concludes with suggestions for moving bioavailability forward in the regulatory arena for both soil and sediment cleanup.

Discover how biomarkers can boost the success rate of drugdevelopment efforts As pharmaceutical companies struggle to improve the success rateand cost-effectiveness of the drug development process, biomarkershave emerged as a valuable tool. This book synthesizes and reviewsthe latest efforts to identify, develop, and integrate biomarkersas a key strategy in translational medicine and the drugdevelopment process. Filled with case studies, the bookdemonstrates how biomarkers can improve drug development timelines,lower costs, facilitate better compound selection, reducelate-stage attrition, and open the door to personalizedmedicine. Biomarkers in Drug Development is divided into eightparts: Part One offers an overview of biomarkers

and their role in drugdevelopment. Part Two highlights important technologies to help researchersidentify new biomarkers. Part Three examines the characterization and validation processfor both drugs and diagnostics, and provides practical advice onappropriate statistical methods to ensure that biomarkers fulfilltheir intended purpose. Parts Four through Six examine the application of biomarkers indiscovery, preclinical safety assessment, clinical trials, andtranslational medicine. Part Seven focuses on lessons learned and the practical aspectsof implementing biomarkers in drug development programs. Part Eight explores future trends and issues, including dataintegration, personalized medicine, and ethical concerns. Each of the thirty-eight chapters was contributed by one or moreleading experts, including scientists from biotechnology andpharmaceutical firms, academia, and the U.S. Food and DrugAdministration. Their contributions offer pharmaceutical andclinical researchers the most up-to-date understanding of thestrategies used for and applications of biomarkers in drugdevelopment.

This Handbook on Metalloproteins focuses on the available structural information of proteins and their metal ion coordination spheres. It centers on the metal ions indispensable for life but also considers metal ions used as substitution probes in studies of metalloproteins. Emphasizing the structure-function relationship, the book covers the common and distinct characterstics of metallo- enzymes, proteins, and amino acids bonded to copper, zinc, iron, and more.

This first volume of the Metabolic Pathway Engineering Handbook provides an overview of metabolic pathway engineering with a look towards the future. It discusses cellular metabolism, including transport processes inside the cell and energy generating reactions, as well as rare metabolic conversions. This volume also explores balances and reaction

The detailed monographs in this volume summarize the technical, analytical, dietary exposure and toxicological data on a number of contaminants in food: acrylamide, arsenic, deoxydivalenol, furan, mercury and perchlorate. This volume and others in the WHO Food Additives series contain information that is useful to those who produce and use food additives and veterinary drugs and those involved with controlling contaminants in food, government and food regulatory officers, industrial testing laboratories, toxicological laboratories and universities.

Men with cancer rendered infertile by surgery, chemotherapy, radiation and hormone therapy that are needed to control or cure their disease are increasingly being offered the chance to preserve their reproductive potential through artificial reproductive technologies. Cryopreservation of sperm and testicular tissue have increasingly helped boys and men preserve their fertility. There is a growing subspecialty within reproductive medicine aimed at fertility preservation in this population. Furthermore, strategies are being developed that may in the future revolutionize the approach to such patients. Written by international authorities in the field of fertility preservation, this comprehensive book is aimed at clinicians dealing with male cancer patients, in particular, urologists, andrologists, oncologists, pediatricians and nursing

staff as well as clinicians in reproductive endocrinology. The text reviews the impact of cancers and their treatment on male fertility, the available fertility preservation strategies and post-treatment management.

"Cultural aversion to microbes, healthiness or desire for safe bathing, the applications for water disinfection are varied and the technologies used to achieve this goal are numerous. The authors looked at a simple solution to implement: the use of a reagent called performic acid. Consequently, more than two years of applied research, observations and analyzes were necessary to demonstrate its harmlessness towards the natural environment. The strength of the demonstration lies in the cross-vision of many researchers and scientists from different backgrounds who shared their studies and observations. The strength of this testimony also lies in the diversity of the application cases, including notable and sensitive receiving environments as different as the Seine, the Atlantic Ocean or the Venice lagoon. Through its intentions and results, this work is a step, moving forward the 2030 Agenda for Sustainable Development, particularly SDG 6 “clean water and sanitation” relying on the lever of SDG 17 “partnerships for the goals”." Denis Penouel, Deputy CEO in charge of Prospective

The need to professionally and successfully conduct computer forensic investigations of incidents and crimes has never been greater. This has caused an increased requirement for information about the creation and management of computer forensic laboratories and the investigations themselves. This includes a great need for information on how to cost-effectively establish and manage a computer forensics laboratory. This book meets that need: a clearly written, non-technical book on the topic of computer forensics with emphasis on the establishment and management of a computer forensics laboratory and its subsequent support

to successfully conducting computer-related crime investigations. Provides guidance on creating and managing a computer forensics lab Covers the regulatory and legislative environment in the US and Europe Meets the needs of IT professionals and law enforcement as well as consultants

Cereal grain safety from farm to table Mycotoxin Reduction in Grain Chains examines the ways in which food producers, inspectors, and processors can keep our food supply safe. Providing guidance on identification, eradication, and prevention at each stop on the "grain chain, this book is an invaluable resource for anyone who works with cereal grains. Discussions include breeding and crop management, chemical control, contamination prediction, and more for maize, wheat, sorghum, rice, and other major grains. Relevant and practical in the field, the lab, and on the production floor, this book features critical guidance for every point from farm to table.

This book aims to provide examples of applications of atomic force microscopy (AFM) using biological samples, showing different methods for AFM sample preparation, data acquisition and processing, and avoiding technical problems. Divided into two sections, chapters guide readers through image artifacts, process and quantitatively analyze AFM images, lipid bilayers, image DNA-protein complexes, AFM cell topography, single-molecule force spectroscopy, single-molecule dynamic force spectroscopy, fluorescence methodologies, molecular recognition force spectroscopy, biomechanical characterization, AFM-based biosensor setup, and detail how to implement such an in vitro system, which can monitor cardiac electrophysiology, intracellular calcium dynamics, and single cell mechanics. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to

their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, Atomic Force Microscopy: Methods and Protocols is useful for researchers at different stages, from newcomers to experienced users, interested in new AFM applications.

his book has been prepared with the aim to present the application of these two state-of-the art technologies in agricultural sciences and food technology, and to explain the protocols for analyses of different plant, animal, microbiological and food samples as well as for different biotechnology procedures. Selected methods and protocols which are used in plant stress physiology, weed science, fruit breeding research, microbial ecology, plant virus and fungus diagnostics, phytobacteriology, fishery, food biochemistry, food materials and food technology are described. Special adaptation of certain protocols is required for application in each of these sciences, for every type of GMO organism, food technology raw material, and food technology product, as well as for every type of bacteria, virus, fungus or fungus-like organism, for each type of raw material in terms of plant host species, plant organs, year period and conditions in the laboratory. Application of molecular methods, primarily qPCR, and Raman microscopy/ spectroscopy in agricultural and food sciences provides substantial opportunity for increased production efficiency, food safety, better product quality and improvement of plant and animal health. This book is aimed for students, scientists and professionals working in the field of agriculture and food technology.

The extremely potent substance botulinum neurotoxin (BoNT) has attracted much interest in diverse fields. Originally identified as cause for the rare but deadly disease

botulism, military and terrorist intended to misuse this sophisticated molecule as biological weapon. This caused its classification as select agent category A by the Centers for Diseases Control and Prevention and the listing in the Biological and Toxin Weapons Convention. Later, the civilian use of BoNT as long acting peripheral muscle relaxant has turned this molecule into an indispensable pharmaceutical world wide with annual revenues >$1.5 billion. Also basic scientists value the botulinum neurotoxin as molecular tool for dissecting mechanisms of exocytosis. This book will cover the most recent molecular details of botulinum neurotoxin, its mechanism of action as well as its detection and application.

Mycotoxins, toxic compounds produced by fungi, pose a significant contamination risk in both animal feed and foods for human consumption. With its distinguished editors and international team of contributors, Mycotoxins in food summarises the wealth of recent research on how to assess the risks from mycotoxins, detect particular mycotoxins and control them at differing stages in the supply chain. Part one addresses risk assessment techniques, sampling methods, modelling and detection techniques used to measure the risk of mycotoxin contamination and the current regulations governing mycotoxin limits in food. Part two looks at how the risk of contamination may be controlled, with chapters on the use of HACCP systems and mycotoxin control at different stages in the supply chain. Two case studies demonstrate how these controls work for particular products. The final section details particular mycotoxins, from

ochratoxin A and patulin to zearalenone and fumonisins. Mycotoxins in food is a standard reference for all those concerned with ensuring the safety of food. Discusses the wealth of recent research in this important area Covers risk assessment, detection of particular mycotoxins and how to control them throughout the supply chain Describes how the risk of contamination can be controlled, including the use of HACCP systems PROMISING NEW APPROACHES TO RECYCLE CARBON DIOXIDE AND REDUCEEMISSIONS With this book as their guide, readers will learn a variety ofnew approaches and methods to recycle and reuse carbon dioxide(CO2) in order to produce green fuels and chemicals and,at the same time, minimize CO2 emissions. The authorsdemonstrate how to convert CO2 into a broad range ofessential products by using alternative green energy sources, suchas solar, wind, and hydro-power as well as sustainable energysources. Readers will discover that CO2 can be a drivingforce for the sustainable future of both the chemical industry andthe energy and fuels industry. Green Carbon Dioxide features a team of expert authors,offering perspectives on the latest breakthroughs in CO2recycling from Asia, Europe, and North America. The book beginswith an introduction to the production of CO2-basedfuels and chemicals. Next, it covers such topics as: Transformation of CO2 to useable products throughfree-radical-induced reactions Hydrogenation of CO2 to liquid fuels Direct synthesis of organic carbonates from CO2 andalcohols using heterogeneous oxide catalysts Electrocatalytic reduction of CO2 in methanolmedium Fuel production from photocatalytic reduction of

CO2with water using TiO2-based nanocomposites Use of CO2 in enhanced oil recovery and carboncapture and sequestration More than 1,000 references enable readers to explore individualtopics in greater depth. Green Carbon Dioxide offers engineers, chemists, andmanagers in the chemical and energy and fuel industries aremarkable new perspective, demonstrating how CO2 canplay a significant role in the development of a sustainableEarth.

Mass spectrometry (MS) offers unmatched capabilities for the detection, characterization, and identification of a broad range of analytes. Mass spectrometry imaging (MSI) integrates MS data with information on the spatial distributions of the analytes, further enhancing the applicability of MS. In Mass Spectrometry Imaging: Principles and Protocols, expert practitioners from academia, industry, and the clinic contribute cutting-edge protocols describing the application of MSI to investigations of analyte localization in a variety of specimens, from microorganisms to plant and animal tissues. Divided into three sections, this volume presents the principles of MS, current and future trends of MSI, and qualitative and quantitative protocols to measure and identify endogenous metabolites and xenobiotics. An array of MSI approaches and technologies for characterizing peptide and protein distributions are described in detail. Written in the highly successful Methods in Molecular BiologyTM series format, protocol chapters include introductions to their respective topics, lists of the necessary materials and reagents, and step-by-step, readily reproducible laboratory procedures. Also

included are notes providing tips to avoid experimental pitfalls and helpful suggestions for method troubleshooting. Comprehensive and up-to-date, Mass Spectrometry Imaging: Principles and Protocols is written for scientists, biological and chemical engineers, and clinicians who are interested in applying MSI in their work and those who would benefit from having detailed experimental guidelines available in a single, convenient source.

Biomaterials are produced from biological material and are used for their physical characteristics. This book looks at the range of biomaterials and their applications which range from the use of polysaccharides as thickening agents to the use of proteins as fibres and adhesives.

Materials with layered structures remain an extensively investigated subject in current physics and chemistry. Most of the promising technological applications however deal with intercalation compounds of layered materials. Graphite intercalation compounds have now been known for a long time. Intercalation in transition metal dichalcogenides, on the other hand, has been investigated only recently. The amount of information on intercalated layered materials has increased far beyond the original concept for this volume in the series Physics and Chemistry of Materials with Layered Structures. The large size of this volume also indicates how important this field of research will be, not only in basic science, but also in industrial and energy applications. In this volume, two classes of materials are included, generally investigated by different scientists. Graphite

intercalates and intercalates of other inorganic com pounds actually constitute separate classes of materials. However, the similarity between the intercalation techniques and some intercalation processes does not justify this separation, and accounts for the inclusion of both classes in this volume. The first part of the volume deals with intercalation processes and intercalates of transition metal dichalcogenides. Several chapters include connected topics necessary to give a good introduction or comprehensive review of these types of materials. Organic as well as inorganic intercalation compounds are treated. The second part includes contributions concerning graphite intercalates. It should be noted that graphite intercalation compounds have already been mentioned in Volumes I and V.

Carbon Capture and Storage technologies (CCS) are moving from experiment toward commercial applications at a rapid pace, driven by urgent demand for carbon mitigation strategies. This book examines the potential role of CCS from four perspectives: technology development, economic competitiveness, environmental and safety impacts, and social acceptance. IEK-STE of Forschungszentrum Juelich presents this interdisciplinary study on CCS, based on methods of Integrated Technology Assessment. Following an introductory chapter by editor Wilhelm Kuckshinrichs, Part I of the book surveys the status of carbon capture technologies, and assesses the potential for research and development of applications that are useful at scales required for meaningful mitigation. Transportation, Utilization and Environmental Aspects of CO2

receive chapter-length treatments, and the section concludes with an examination of safe geological storage of CO2 based on the example of the Ketzin pilot site, not far from Berlin. Part II covers Economic and Societal Perspectives. The first chapter discusses the use of CCS in the energy sector, analyzing costs associated with electricity generation and CO2 mitigation on the basis of technology-specific cost and process parameters, along with a merit-order illustration of the possible implications of CCS facilities for energy costs. Later chapters outline the costs of CCS application in energy- and CO2-intensive industries; analyze system characteristics of CCS infrastructures, showing that the infrastructure cost function depends on the ratio of fixed to variable costs, as well as on the spatial distribution of CO2 sources and storage facilities; interpret cross-sector carbon mitigation strategies and their impacts on the energy and CO2 balance; and discuss awareness and knowledge of CCS, attitudes towards it, and how the risks and benefits of CCS are perceived. Part III discusses the Framework for Energy and Climate Policy, with chapters on acceptance and adoption of CCS policy in Germany, and the EU, and an assessment of international cooperation in support of CCS. The final chapter summarizes the central arguments, discusses the potential role of carbon capture and utilization as part of a German transformation strategy, and extrapolates the findings to European and international contexts.
Like most supplement volumes of the platinum-group metal series,Platinum Suppl. Vol. A 1 has been written by an international team of specialists. It comprises technological

data of all six platinum-group metals and their technically relevant alloys and compounds. The volume starts with a review on the recovery of the platinum-group metals (23 pages); the next 42 pages are devoted to processes for separating and refining the PGM in order to obtain metals of high purity. The electrodeposition of the PGM and their alloys is treated on 26 pages.The by far most extensive section deals with PGMand their alloys and compounds in catalysis. After a historicalsurvey and alist of important reviewson PGMcatalysis,the catalytic properties of the metals are treated in a general way, followed by unsupported metals and alloys including preparation of catalysts and their reactions in various industrial processes. The role of supported metals and alloys is described in asimilar manner. This isfollowed byan extensive description of the preparation and the reactions of PGM compounds with various nonmetals and their catalytically active role in a number of industrial processes (226 pages). The last chapter (21 pages) is a compilation of data on the medical use of cytostatic platinum compounds. Gelnhausen, December 1985 Kurt Swars IX Table of Contents Page Technology ofthe Platinum-Group Metals. ..... 1 1 Review on the Recovery ofthe Platinum-Group Metals . 1.1 Historical Perspective , , , . Period of Discovery, 1750 to 1820 , , . First Industrial Period 1820 to 1900 , , , .

This proceedings volume comprises the invited plenary lectures, contributed and poster papers presented at a symposium organised to mark the successful inauguration of the world's first commercial plant for production of gasoline from natural gas, based on the

Mobil methanol-to-gasoline process. The objectives of the Symposium were to present both fundamental research and engineering aspects of the development and commercialization of gas-to-gasoline processes. These include steam reforming, methanol synthesis and methanol-to-gasoline. Possible alternative processes e.g. MOGD, Fischer-Tropsch synthesis of hydrocarbons, and the direct conversion of methane to higher hydrocarbons were also considered. The papers in this volume provide a valuable and extremely wide-ranging overview of current research into the various options for natural gas conversion, giving a detailed description of the gas-to-gasoline process and plant. Together, they represent a unique combination of fundamental surface chemistry catalyst characterization, reaction chemistry and engineering scale-up and commercialization.

Stem cell biology has drawn tremendous interest in recent years as it promises cures for a variety of incurable diseases. This book deals with the basic and clinical aspects of stem cell research and involves work on the full spectrum of stem cells isolated today. It also covers the conversion of stem cell types into a variety of useful tissues which may be used in the future for transplantation therapy. It is thus aimed at undergraduates, postgraduates, scientists, embryologists, doctors, tissue engineers and anyone who wishes to gain some insight into stem cell biology. This book is important as it is comprehensive and covers all aspects of stem cell biology, from basic research to clinical applications. It will have 33 chapters written by renowned stem cell

scientists worldwide. It will be up-to-date and all the chapters include self-explanatory figures, color photographs, graphics and tables. It will be easy to read and give the reader a complete understanding and state of the art of the exciting science and its applications.

Carbon Dioxide Mineralization and UtilizationSpringer

The fourth edition of this bestselling text will again provide the latest coverage of the biochemistry and physiology of vitamins and vitamin-like substances. Extensively revised and expanded on the basis of recent research findings with enlarged coverage of health effects of vitamin-like factors, it is ideally suited for students and an important reference for anyone interested in nutrition, food science, animal science or endocrinology. It contains a cohesive and well-organized presentation of each of the vitamins, as well as the history of their discoveries and current information about their roles in nutrition and health. Selected for inclusion in Doody's Core Titles 2013, an essential collection development tool for health sciences libraries Includes approximately 30% new material Substantial updates have been made to chapters on vitamins A, C, E, K, folate, and the quasi-vitamins Provides checklists of systems affected by vitamin deficiencies and food sources of vitamins Key concepts, learning objectives, vocabulary,case studies, study questions and additional reading lists are included making this ideally suited for students Thoroughly updated with important recent research results, including citations to key reports, many added tables and

several new figures Addition of Health and Nutrition Examination Survey (HANES III) data Updated Dietary Reference Values

By presenting background information on the selection and application of biochemical tests in safety assessment studies, this text seeks to provide a basis for improving the knowledge required to interpret data from toxicological studies. In addition to chapters which discuss the assessment of specific organ toxicity (such as the liver, kidney and thyroid), the book also covers pre-analytical variables, regulatory requirements and statistical approaches, and highlights some of the major differences between man and different laboratory animals. The editor and contributor are all members of the Animal Clinical Chemistry Association, a group formed to advance the science of animal clinical chemistry in safety evaluation, toxicology and veterinary science.

The mining sector, if carefully managed, presents enormous opportunities for advancing sustainable development particularly in low-income countries, the International Resource Panel says in its latest report

This book explores some of the opportunities and risks - economic, social and technological - that decision-makers will have to address, and outlines what needs to be done to foster society's capacity to manage its future more flexibly and with broader participation of its citizens.

The 4th International Conference on Hemochromatosis and the 11th International Conference on Iron and Iron Proteins took place in Jerusalem on April 27 -30 and on May 2 -7 1993, respectively. The first, a clinical meeting, and the second, a forum designed primarily for basic

scientists. Both meetings are held regularly on alter nate years and represent probably the most important forum for the exchange of information in iron research. The present volume "Progress in Iron Research" is based on a selection of presentations delivered at these meetings. However, this volume represents much more than a publication of conference proceedings. It offers a comprehensive state-of-the-art review on most aspects of iron metabolism. We have tried to offer a balanced review of the most important recent developments in iron research including both basic research and clinical investigation. However, the scope of chapters was based, by definition, on the actual participants at the meetings and some important fields in iron research such as plant physiology, microbial aspects of iron metabolism, and free radical research have not been dealt with. Many of the authors of the 40 chapters have beel). pt1rsonally responsible for some of the most important developments in iron research ~~vidffig: n~~~ights into iron physiology and pathophysiology. The Editors wish to express their gratitude for the outstanding and timely cooperation of all contributors to this volume.

Discover how metal-enhanced fluorescence is changing traditional concepts of fluorescence This book collects and analyzes all the current trends, opinions, and emerging hot topics in the field of metal-enhanced fluorescence (MEF). Readers learn how this emerging technology enhances the utility of current fluorescence-based approaches. For example, MEF can be used to better detect and track specific molecules that may be present in very low quantities in either clinical samples or biological systems. Author Chris Geddes, a noted pioneer in the field, not only explains the fundamentals of metal-enhanced fluorescence, but also the significance of all the most recent findings and models in the field. Metal-enhanced fluorescence refers to

the use of metal colloids and nanoscale metallic particles in fluorescence systems. It offers researchers the opportunity to modify the basic properties of fluorophores in both near- and far-field fluorescence formats. Benefits of metal-enhanced fluorescence compared to traditional fluorescence include: Increased efficiency of fluorescence emission Increased detection sensitivity Protect against fluorophore photobleaching Applicability to almost any molecule, including both intrinsic and extrinsic chromophores Following a discussion of the principles and fundamentals, the author examines the process and applications of metal-enhanced fluorescence. Throughout the book, references lead to the primary literature, facilitating in-depth investigations into particular topics. Guiding readers from the basics to state-of-the-technology applications, this book is recommended for all chemists, physicists, and biomedical engineers working in the field of fluorescence.

This book focuses on an important technology for mineralizing and utilizing CO2 instead of releasing it into the atmosphere. CO2 mineralization and utilization demonstrated in the waste-to-resource supply chain can “reduce carbon dependency, promote resource and energy efficiency, and lessen environmental quality degradation,” thereby reducing environmental risks and increasing economic benefits towards Sustainable Development Goals (SDG). In this book, comprehensive information on CO2 mineralization and utilization via accelerated carbonation technology from theoretical and practical considerations was presented in 20 Chapters. It first introduces the concept of the carbon cycle from the thermodynamic point of view and then discusses principles and applications regarding environmental impact assessment of carbon capture, storage and utilization technologies. After that, it describes the theoretical and practical considerations for “Accelerated Carbonation (Mineralization)”

including analytical methods, and systematically presents the carbonation mechanism and modeling (process chemistry, reaction kinetics and mass transfer) and system analysis (design and analysis of experiments, life cycle assessment and cost benefit analysis). It then provides physico-chemical properties of different types of feedstock for CO2 mineralization and then explores the valorization of carbonated products as green materials. Lastly, an integral approach for waste treatment and resource recovery is introduced, and the carbonation system is critically assessed and optimized based on engineering, environmental, and economic (3E) analysis. The book is a valuable resource for readers who take scientific and practical interests in the current and future Accelerated Carbonation Technology for CO2 Mineralization and Utilization.

New drugs, new devices, improved surgical techniques, and innovative diagnostic procedures and equipment emerge rapidly. But development of these technologies has outpaced evaluation of their safety, efficacy, cost-effectiveness, and ethical and social consequences. This volume, which is "strongly recommended" by The New England Journal of Medicine "to all those interested in the future of the practice of medicine," examines how new discoveries can be translated into better care, and how the current system's inefficiencies prevent effective health care delivery. In addition, the book offers detailed profiles of 20 organizations currently involved in medical technology assessment, and proposes ways to organize U.S. efforts and create a coordinated national system for evaluating new medical treatments and technology.

Due to a great chemical similarity with the biological calcified tissues, many calcium orthophosphates possess remarkable biocompatibility and bioactivity. Materials scientists use this property extensively to construct artificial bone grafts that are either entirely made of or

only surface-coated with the biologically relevant calcium orthophosphates. Porous scaffolds made of calcium orthophosphates are very promising tools for tissue engineering applications. A comprehensive overview of calcium orthophosphates, this book highlights their importance and biomedical uses.

Methods for the Determination of Metals in Environmental Samples presents a detailed description of 13 analytical methods covering 35 analytes that may be present in a variety of sample types. The methods involve a wide range of analytical instrumentation including inductively coupled plasma (ICP)/atomic emission spectroscopy (AES), ICP/mass spectroscopy (MS), atomic absorption (AA) spectroscopy, ion chromatography (IC), and high performance liquid chromatography (HPLC). The application of these techniques to such a diverse group of sample types is a unique feature of this book. Sample types include waters ranging from drinking water to marine water, in addition to industrial and municipal wastewater, groundwater, and landfill leachate. The book also includes methods that will accommodate biological tissues, sediments, and soils. Methods in this book can be used in several regulatory programs because of their applicability to many sample types. For example, ICP/AES, ICP/MS, and AA methods can be used in drinking water and permit programs. Methods applicable to marine and estuarine waters can be used for the EPA's National Estuary Program. Terminology is consistent throughout the book, an important feature especially for the quality control sections where standardized terminology is not yet available. Methods for the Determination of Metals in Environmental Samples is an indispensable methods guide for all environmetal labs, wastewater labs, drinking water labs, lab managers, consultants, and groundwater engineers.