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Processes of Water covers the fundamentals behind a broad spectrum of advanced purification processes for various types of water, showing numerous applications through worked examples. Purification processes for groundwater, soil water, reusable water, and raw water are examined where they are in use full-scale, as a pilot approach, or in the laboratory. This book also describes the production of ceramic particles (nanochemistry) and materials for the creation of filtration systems and catalysts that are involved. Uses chemistry fundamentals to explain the mechanisms behind the various purification processes. Explains in detail process equipment and technical applications. Describes the production of ceramic particles and other new materials applicable to filtration systems. Includes worked examples.

Nanotechnology is being used to enhance water quality, as well as how the properties of nanomaterials can be used to create different properties in both alcoholic and no-alcoholic drinks and enhance the biosafety of both drinks and their packaging. This is an important reference for materials scientists, engineers, food scientists and microbiologists who want to learn more about how nanotechnology is being used to enhance beverage products. As active packaging technology, nanotechnology can increase shelf-life and maintain the quality of beverages. In the field of water treatment, nanomaterials offer new routes to address challenges. Advances in Water Purification Techniques: Satinder Ahuja 2018-11-29

Advances in Water Purification Techniques: Meeting the Needs of Developed and Developing Countries provides a variety of approaches to water purification that can help assist readers with their research and applications. Water contamination problems occur frequently.
worldwide, hence the most updated knowledge on water purification systems can be helpful in employing the right type of filter or other mechanism of decontamination. The problems with arsenic contamination of water in Bangladesh and the lead problem in Flint, Michigan remind us of the need to monitor water pollution rigorously, from both point and non-point sources. Provides a valuable resource on how to solve water contamination problems or develop new approaches to water purification. Presents advanced methods for monitoring water contamination. Describes various approaches to water purification. Encourages new developments in water purification techniques. Includes methods for assessing and monitoring environmental contaminants. Covers recent advancement in molecular techniques. Environmental Nanotechnology for Water Purification—Shahid Ul-Islam 2020-06-10 Dyes, pigments, and metals are extensively used in food, paper, carpet, rubber, plastics, cosmetics, and textile industries, in order to color and finish products. As a result, they generate a considerable amount of coloured wastewater rich in organic, inorganic, and mineral substances which are continuously polluting the water bodies and affecting human and aquatic life. Besides these industries, urban and agricultural activities also generate effluents high in biochemical oxygen demand (BOD) and chemical oxygen demand (COD). In recent years, considerable research work has been done in this area and is underway to eliminate heavy metals particularly mercury (Hg), chromium (Cr), lead (Pb), selenium and cadmium (Cd) and synthetic dyes from polluted waters which have high toxicity and carcinogenicity. Currently a number of methods are in operation to decontaminate the polluted waters. Among several purification technologies, use of nanoparticles/composites have gained much attention as efficient purification technology due to its many advantages such as simple
synthesis, special chemical and physical properties, unique photocatalytic activity and beneficial antimicrobial properties and high efficiency. The book Environmental Nanotechnology for Water Purification comprehensively covers and provides new insights on all nanoparticles, composites and advanced methods employed in water purification. Advanced Water Treatment-Mika Sillanpaa 2020-01-08 Advanced Water Treatment: Adsorption discusses the application of adsorption in water purification. The book reviews research findings on the preparation of five different nano/microcellulose-based adsorbents, their characterization, the study of adsorption kinetics and isotherms, the determination of adsorption mechanisms, and an evaluation of adsorbents’ regeneration properties. The book describes modification microfibrillated cellulose (MFC), the use of succinic anhydride modified mercerized nanocellulose, and aminosilane and hydroxyapatite modified nanostructured MFC for the removal of heavy metals from aqueous solutions. Final sections describe the use of aminosilane, epoxy and hydroxyapatite modified MFC as a promising alternative for H2S removal from aqueous solutions, along with new findings on the adsorption properties of carbonated hydroxyapatite modified MFC as multifunctional adsorbent for the removal of both cations and anions ions from water. Includes the most recent research on advanced water treatment by adsorption. Provides the latest updates on novel absorbents for water purification. Describes REE removal using various absorbents. Covers a wide range of methods and their integration. Water Purification-Alexandru Grumezescu 2016-12-28 Water Purification, a volume in the Nanotechnology in the Food Industry series, provides an in-depth review of the current technologies and emerging application of nanotechnology in drinking water purification, also presenting an overview of the common drinking water contaminants, such as heavy metals, organics,
microorganisms, pharmaceuticals, and their occurrences in drinking water sources. As the global water crisis has motivated the industry to look for alternative water supplies, nanotechnology presents significant potential for utilizing previously unacceptable water sources. This book explores the practical methodologies for transforming water using nanotechnologies, and is a comprehensive reference to a wide audience of food science research professionals, professors, and students who are doing research in this field. Includes the most up-to-date information on nanotechnology applications and research methods for water purification and treatment. Presents applications of nanotechnology and engineered nanomaterials in drinking water purification to improve efficiency and reduce cost. Provides water purification research methods that are important to water quality, including precipitation, adsorption, membrane separation, and ion exchange. Covers the potential risks of nanotechnology, such as the toxicological effects of engineered nanomaterials in water and how to minimize risks based on research studies. 

Smart Materials for Advanced Environmental Applications- Peng Wang, 2016-02-24 This book is dedicated to the innovative and emerging applications of designed functional surfaces to solving environmental challenges. Japanese Colleges and Universities- 1991 Physico-chemical Aspects of Textile Coloration-Stephen M. Burkinshaw, 2016-02-08 The production of textile materials comprises a very large and complex global industry that utilises a diverse range of fibre types and creates a variety of textile products. As the great majority of such products are coloured, predominantly using aqueous dyeing processes, the coloration of textiles is a large-scale global business in which complex procedures are used to apply different types of dye to the various types of textile material. The development of such dyeing processes is the result of substantial research activity,
undertaken over many decades, into the physicochemical aspects of dye adsorption and the establishment of ‘dyeing theory’, which seeks to describe the mechanism by which dyes interact with textile fibres. Physico-Chemical Aspects of Textile Coloration provides a comprehensive treatment of the physical chemistry involved in the dyeing of the major types of natural, man-made and synthetic fibres with the principal types of dye. The book covers: fundamental aspects of the physical and chemical structure of both fibres and dyes, together with the structure and properties of water, in relation to dyeing; dyeing as an area of study as well as the terminology employed in dyeing technology and science; contemporary views of intermolecular forces and the nature of the interactions that can occur between dyes and fibres at a molecular level; fundamental principles involved in dyeing theory, as represented by the thermodynamics and kinetics of dye sorption; detailed accounts of the mechanism of dyeing that applies to cotton (and other cellulosic fibres), polyester, polyamide, wool, polyacrylonitrile and silk fibres; non-aqueous dyeing, as represented by the use of air, organic solvents and supercritical CO2 fluid as alternatives to water as application medium. The up-to-date text is supported by a large number of tables, figures and illustrations as well as footnotes and widespread use of references to published work. The book is essential reading for students, teachers, researchers and professionals involved in textile coloration. Advanced Environmental and Chemical Sensing Technology-Tuan Vo-Dinh 2001

Green Sustainable Process for Chemical and Environmental Engineering and Science-Dr. Inamuddin 2020-12-01 Green Sustainable Process for Chemical and Environmental Engineering and Science: Solvents for the Pharmaceutical Industry aims at providing a detailed overview of applications of green solvents in pharmaceutical industries. It
also focuses on providing a detailed literature survey on the green solvents for pharmaceutical analysis, drug design, synthesis, and production, etc. It summarizes the applications of various greens solvents such as water, cyrene, vegetable oils, ionic liquids, ethyl lactate, eutectic solvents, and glycerol in contrast to toxic solvents. This book provides an overview of the use of green solvents for the sustainable and environmentally friendly development of synthetic methodologies for biomedical and pharmaceutical industries. Up-to-date developments towards the development of solvents for pharmaceutical industry Includes latest advances in pharmaceutical analysis and synthesis using green solvents Outlines eco-friendly green solvents for medicinal applications State-of-the-art overview on the exploration of green solvents for pharmaceutical industries Nanomaterials for Environmental Purification and Energy Conversion-Ewa Kowalska 2020-02-06 The Special Issue, “Nanomaterials for Environmental Purification and Energy Conversion”, describes the significant and increasing role of nanomaterials in catalysis. It is believed that the most important factor for future human development could be to use nanomaterials (nanotechnology) to solve such critical issues facing humanity such as environment, water and energy. It should be also pointed out that properties of nanomaterials differ substantially from that of bulk materials of the same composition, resulting in high reactivity. Therefore, it creates new perspectives for the catalytic processes in the broad sense. This issue was mainly dedicated as a platform for the contributions from The Symposium on Nanomaterials for Environmental Purification and Energy Conversion (SNEPEC), which was held in Sapporo, Japan in winter 2018. Accordingly, this book compiles the current state-of-the-art of research in the area of novel photocatalysts and highlights current research directions in the fields of advanced oxidation technologies, material science
and nanotechnology. Written by leading experts in the field of photochemistry and chemical engineering, a collection of 17 papers, including 16 research papers and one review, covers a broad range of topics focusing on the exceptional role of catalytic nanomaterials in solving environmental and energy problems of modern societies. The majority of papers present the importance of photocatalytic nanomaterials, especially for degradation of organic pollutants and inactivation of microorganisms, but there is also a strong representation of conventional catalysis, based on nanomaterials for important processes such as catalytic hydrogen production and organic synthesis.

Advanced Water Treatment-Mika Sillanpaa 2020-01-08
Advanced Water Treatment: Advanced Oxidation Processes reviews the most recent research findings and discusses new photocatalysts (such as TiO2, etc.) and their performance under different conditions. Furthermore, the book includes the use of UV LEDs (with H2O2) for the decomposition of organic pollutants and bacteria in various conditions and water samples. Advanced oxidation processes (AOPs) have widely been used in water and wastewater treatment. This book highlights their work towards improving energy-efficient and environmentally friendly technology for growing needs in water treatment. Includes most recent research on advanced water treatment using photocatalysis Covers novel photocatalysts for water purification Presents the use of sulphide materials in water purification

Advanced Environmental Analysis-Chaudhery Mustansar Hussain 2016-11-14 Environmental analysis techniques have advanced due to the use of nanotechnologies in improving the detection sensitivity and miniaturization of the devices in analytical procedures. These allow for developments such as increases in analyte concentration, the removal of interfering species and improvements in the detection limits. Bridging a gap in the literature, this book uniquely brings together state-of-the-
art research in the applications of novel nanomaterials to each of the classical components of environmental analysis, namely sample preparation and extraction, separation and identification by spectroscopic techniques. Special attention is paid to those approaches that are considered greener and reduce the cost of the analysis process both in terms of chemicals and time consumption. Advanced undergraduates, graduates and researchers at the forefront of environmental science and engineering will find this book a good source of information. It will also help regulators, decision makers, surveillance agencies and the organizations assessing the impact of pollutants on the environment.

Adsorption Processes for Water Treatment and Purification-Adrián Bonilla-Petriciolet 2017-07-19 This book provides researchers and graduate students with an overview of the latest developments in and applications of adsorption processes for water treatment and purification. In particular, it covers current topics in connection with the modeling and design of adsorption processes, and the synthesis and application of cost-effective adsorbents for the removal of relevant aquatic pollutants. The book describes recent advances and alternatives to improve the performance and efficacy of this water purification technique. In addition, selected chapters are devoted to discussing the reliable modeling and analysis of adsorption data, which are relevant for real-life applications to industrial effluents and groundwater. Overall, the book equips readers with a general perspective of the potential that adsorption processes hold for the removal of emerging water pollutants. It can readily be adopted as part of special courses on environmental engineering, adsorption and water treatment for upper undergraduate and graduate students. Furthermore, the book offers a valuable resource for researchers in water production control, as well as for practitioners interested in applying
adsorption processes to real-world problems in water treatment and related areas. The Environmental Science of Drinking Water-Patrick Sullivan 2005-08-01 In today’s chemically dependent society, environmental studies demonstrate that drinking water in developed countries contains numerous industrial chemicals, pesticides, pharmaceuticals and chemicals from water treatment processes. This poses a real threat. As a result of the ever-expanding list of chemical and biochemical products industry, current drinking water standards that serve to preserve our drinking water quality are grossly out of date. Environmental Science of Drinking Water demonstrates why we need to make a fundamental change in our approach toward protecting our drinking water. Factual and circumstantial evidence showing the failure of current drinking water standards to adequately protect human health is presented along with analysis of the extent of pollution in our water resources and drinking water. The authors also present detail of the currently available state-of-the-art technologies which, if fully employed, can move us toward a healthier future. * Addresses the international problems of outdated standards and the overwhelming onslaught of new contaminants. * Includes new monitoring data on non-regulated chemicals in water sources and drinking water. * Includes a summary of different bottled waters as well as consumer water purification technologies.

The Environmentally Educated Engineer-David George Elms 1995 Twenty-one papers. Nanotechnology for Water Treatment and Purification-Anming Hu 2014-07-04 This book describes the latest progress in the application of nanotechnology for water treatment and purification. Leaders in the field present both the fundamental science and a comprehensive overview of the diverse range of tools and technologies that have been developed in this critical area. Expert chapters present the unique physicochemical and surface properties of nanoparticles and the advantages that these
provide for engineering applications that ensure a supply of safe drinking water for our growing population. Application areas include generating fresh water from seawater, preventing contamination of the environment and creating effective and efficient methods for remediation of polluted waters. The chapter authors are leading worldwide experts in the field with either academic or industrial experience, ensuring that this comprehensive volume presents the state-of-the-art in the integration of nanotechnology with water treatment and purification. Water Treatment for Purification from Cyanobacteria and Cyanotoxins-Anastasia E. Hiskia 2020-07-10 Provides a comprehensive overview of key methods for treating water tainted by cyanobacteria and cyanotoxins. Toxigenic cyanobacteria are one of the main health risks associated with water resources. Consequently, the analysis, control, and removal of cyanobacteria and cyanotoxins from water supplies is a high priority research area. This book presents a comprehensive review of the state-of-the-art research on water treatment methods for the removal of cyanobacteria, taste and odor compounds, and cyanotoxins. Starting with an introduction to the subject, Water Treatment for Purification from Cyanobacteria and Cyanotoxins offers chapters on cyanotoxins and human health, conventional physical-chemical treatment for the removal of cyanobacteria/cyanotoxins, removal of cyanobacteria and cyanotoxins by membrane processes, biological treatment for the destruction of cyanotoxins, and conventional disinfection and/or oxidation processes. Other chapters look at advanced oxidation processes, removal/destruction of taste and odour compounds, transformation products of cyanobacterial metabolites during treatment and integrated drinking water processes. Provides a comprehensive overview of key methods for treating water tainted by cyanobacteria and
cyanotoxins Bridges the gap between basic knowledge of cyanobacteria/cyanotoxins and practical management guidelines. Includes integrated processes case studies and real-life examples. Developed within the frame of the European Cooperation in Science and Technology (COST)-funded CYANOCOST. A must-have resource for every water treatment plant.

Water Treatment for Purification from Cyanobacteria and Cyanotoxins is a valuable resource for all researchers in water chemistry and engineering, environmental chemistry as well as water companies and authorities, water resource engineers and managers, environmental and public health protection organizations.

Photochemical Purification of Water and Air - Thomas Oppenländer 2007-06-27

While the treatment of water and exhaust gas using ultraviolet (UV) light offers both ecological and economic advantages, information on photo-initiated advanced oxidation technologies (AOTs) has been dispersed among various journals and proceedings until now. This authoritative and comprehensive handbook is the first to cover both the photochemical fundamentals and practical applications, including a description of advanced oxidation processes (AOPs) and process engineering of suitable photoreactors. The author presents various real-world examples, including economic aspects, while many references to current scientific literature facilitate access to current research topics relevant for water and air industries. Throughout, over 140 detailed figures visualize photochemical and photophysical phenomena, and help in interpreting important research results.

From the foreword by James R. Bolton (President of Bolton Photosciences Inc., Executive Director of the International Ultraviolet Association (IUVA)): "Prof. Oppenländer is well qualified to write about the AOPs/AOTs, since he has contributed to this literature in a very significant manner. This book will be of considerable value to graduate students, science and engineering faculty,
The past 30 years have seen the emergence of a growing desire worldwide to take positive actions to restore and protect the environment from the degrading effects of all forms of pollution: air, noise, solid waste, and water. Because pollution is a direct or indirect consequence of waste, the seemingly idealistic demand for “zero discharge” can be construed as an unrealistic demand for zero waste. However, as long as waste exists, we can only attempt to abate the subsequent pollution by converting it to a less noxious form. Three major questions usually arise when a particular type of pollution has been identified: (1) How serious is the pollution? (2) Is the technology to abate it available? and (3) Do the costs of abatement justify the degree of abatement achieved? The principal intention of the Handbook of Environmental Engineering series is to help readers formulate answers to the last two questions. The traditional approach of applying tried-and-true solutions to specific pollution problems has been a major contributing factor to the success of environmental engineering, and has accounted in large measure for the establishment of a “methodology of pollution control.” However, realization of the ever-increasing complexity and interrelated nature of current environmental problems makes it imperative that intelligent planning of pollution abatement systems be undertaken.
unconventional water sources such as treated wastewater will be a new norm. Emerging nanotechnological innovations have great potential for wastewater remediation processes. Applications that use smart nanomaterials of inorganic and organic origin improve treatment efficiency and lower energy requirements. This book describes the synthesis, fabrication, and application of advanced nanomaterials in water treatment processes; their adsorption, transformation into low toxic forms, or degradation phenomena, and the adsorption and separation of hazardous dyes, organic pollutants, heavy metals and metalloids from aqueous solutions. It explains the use of different categories of nanomaterials for various pollutants and enhances understanding of nanotechnology-based water remediation to make it less toxic and reusable.

Contaminants of Emerging Concern in Water and Wastewater: Advanced Treatment Processes presents the state-of-the-art in the design and use of adsorbents, membranes, and UV/oxidation processes, along with the challenges that will need to be addressed to close the gap between development and implementation in water/wastewater treatment applications. Chapters cover adsorbent and membrane design and performance, direct comparison of performance data between new (inorganic and metal organic nanoporous materials) and classic adsorbents and membranes, a list of advantages, disadvantages, and challenges related to performance limitations, regenerability, and upscaling. In addition, users will find sections on the identification of potential site and off-site applications that are listed according to adsorbent and membrane types, transformation of CECs in low- and/or medium-pressure UV irradiation processes used for disinfection, the oxidation of CECs by chlorine and ozone, and a comparison of advanced oxidation processes for the
treatment of a variety of CECs in water and wastewater. Addresses the advantages/disadvantages of select technologies, including energy resource needs and waste management issues of reverse osmosis, amongst other issues. Presents information on the advancements of technology within the realm of Engineered Treatments of CECs. Focuses on the inherent science and technology of advanced treatment processes. Department of Defense Chemical and Biological Defense Program Annual Report to Congress 2005-Sewage Works in Japan- 1986. Department of Defense Chemical and Biological Defense Program Annual Report to Congress 2006-Environmental Chemistry-Green Chemistry for Environmental Remediation-Rashmi Sanghi 2012-01-20. The book presents an in depth review from eminent industry practitioners and researchers of the emerging green face of multidimensional environmental chemistry. Topics such as green chemistry in industry, green energy: solar photons to fuels, green nanotechnology and sustainability, and green chemistry modeling address a wide array of issues encouraging the use of economical ecofriendly benign technologies, which not only improve the yield, but also illustrates the concept of zero waste, a subject of interest to both chemists and environmentalists alike. Water Purification and Management-José Coca-Prados 2010-12-14. One of the major challenges for many Mediterranean and other countries is finding viable solutions to tackle water shortage. Some of the major water quality constraints derive from the high salinity of groundwater and from pollution sources such as: untreated domestic sewage, fertilizers and pesticides from irrigation drainage, industrial effluents, and solid waste disposal. Wastewater treatment processes involving physico-chemical and biological treatment, chemical oxidation, membrane technologies, along with methods of solids concentration and disposal are of special relevance in dealing with these problems.
This volume contains selected lectures presented at the NATO ADVANCED TRAINING COURSE held in Oviedo (November 15-21, 2009) and sponsored by the NATO Science for Peace and Security (SPS) Programme. They cover a variety of topics from wastewater treatment methods to cleaner production strategies, as a careful management of water resources is the basis for sustainable development and to avoid potential security threats. The reader will benefit from a general view of some of the operations involved in wastewater treatment and solid concentration and disposal methods. A proper water reuse and recycling, together with efficient solid disposal, would contribute to a better use of the resources and a sustainable economic growth, particularly in many arid lands of the world.

Environmental Industries Marketplace-Karen Napoleone Meech 1992 This annual contact and descriptive directory is designed to help anyone gain access to the $100-billion environmental market.

Covering a wide range of companies, from consultants and attorneys, engineering firms and land surveyors to retailers and wholesalers, and analysis and treatment facilities, this directory provides contact information, such as complete address, phone, fax, and toll-free numbers.

Environmental Protection-1991
General Catalog-Orta Doğu Teknik Üniversitesi (Ankara, Turkey) 1993
Chemistry and Water-Satinder Ahuja 2016-11-23 After air, water is the most crucial resource for human survival. To achieve water sustainability, we will have to deal with its scarcity and quality, and find ways to reclaim it from various sources. Chemistry and Water: The Science Behind Sustaining the World's Most Crucial Resource applies contemporary and sophisticated separation science and chromatographic methods to address the pressing worldwide concerns of potable water for drinking and safe water for irrigation to raise food for communities around the world. Edited and
authored by world-leading analytical chemists, the book presents the latest research and solutions on topics including water quality and pollution, water treatment technologies and practices, watershed management, water quality and food production, challenges to achieving sustainable water supplies, water reclamation techniques, and wastewater reuse. Explores the role water plays to assure our survival and maintain life Provides valuable information from world leaders in chemistry and water research Addresses water challenges and solutions globally to ensure sustainability

Advanced Oxidation Processes for Water Treatment-Mihaela I. Stefan 2017-09-15

Advanced Oxidation Processes (AOPs) rely on the efficient generation of reactive radical species and are increasingly attractive options for water remediation from a wide variety of organic micropollutants of human health and/or environmental concern. Advanced Oxidation Processes for Water Treatment covers the key advanced oxidation processes developed for chemical contaminant destruction in polluted water sources, some of which have been implemented successfully at water treatment plants around the world. The book is structured in two sections; the first part is dedicated to the most relevant AOPs, whereas the topics covered in the second section include the photochemistry of chemical contaminants in the aquatic environment, advanced water treatment for water reuse, implementation of advanced treatment processes for drinking water production at a state-of-the art water treatment plant in Europe, advanced treatment of municipal and industrial wastewater, and green technologies for water remediation. The advanced oxidation processes discussed in the book cover the following aspects: - Process principles including the most recent scientific findings and interpretation. - Classes of compounds suitable to AOP treatment and examples of reaction mechanisms. - Chemical and photochemical degradation kinetics and modelling. - Water quality
impact on process performance and practical considerations on process parameter selection criteria. - Process limitations and byproduct formation and strategies to mitigate any potential adverse effects on the treated water quality. - AOP equipment design and economics considerations. - Research studies and outcomes. - Case studies relevant to process implementation to water treatment. - Commercial applications. - Future research needs. Advanced Oxidation Processes for Water Treatment presents the most recent scientific and technological achievements in process understanding and implementation, and addresses to anyone interested in water remediation, including water industry professionals, consulting engineers, regulators, academics, students. Editor: Mihaela I. Stefan - Trojan Technologies - Canada

Metal-Organic Frameworks (MOFs) for Environmental Applications-Sujit K. Ghosh
2019-06-07 Metal-Organic Frameworks for

Environmental Applications examines this important topic, looking at potential materials and methods for the remediation of pressing pollution issues, such as heavy-metal contaminants in water streams, radioactive waste disposal, marine oil-spillage, the treatment of textile and dye industry effluents, the clean-up of trace amounts of explosives in land and water, and many other topics. This survey of the cutting-edge research and technology of MOFs is an invaluable resource for researchers working in inorganic chemistry and materials science, but it is also ideal for graduate students studying MOFs and their applications. Examines the applications of metal-organic frameworks for the remediation of environmental pollutants Features leading experts who research the applications of MOFs from around the world, including contributions from the United States, India and China

Explores possible solutions to some of today’s most pressing environmental challenges, such as heavy-metal contamination in bodies of
water, oil spills and clean-up of explosives hidden in land and water Provides an excellent reference for researchers and graduate students studying in the areas of inorganic chemistry, materials chemistry and environmental science

Chemistry of Ozone in Water and Wastewater Treatment-Clemens Sonntag 2012

Chemistry of Ozone in Water and Wastewater Treatment book will discuss mechanistic details of ozone reactions as much as they are known to date and apply them to the large body of studies on micropollutant degradation such as pharmaceuticals and endocrine disruptors that is already available.

New Polymer Nanocomposites for Environmental Remediation-Chaudhery Mustansar Hussain 2018-02-19 New Polymer Nanocomposites for Environmental Remediation summarizes recent progress in the development of materials’ properties, fabrication methods and their applications for treatment of contaminants, pollutant sensing and detection. This book presents current research into how polymer nanocomposites can be used in environmental remediation, detailing major environmental issues, and key materials properties and existing polymers or nanomaterials that can solve these issues. The book covers the fundamental molecular structure of polymers used in environmental applications, the toxicology, economy and life-cycle analysis of polymer nanocomposites, and an analysis of potential future applications of these materials. Recent research and development in polymer nanocomposites has inspired the progress and use of novel and cost-effective environmental applications. Presents critical, actionable guidelines to the structure and property design of nanocomposites in environmental remediation Focuses on taking technology out of the lab and into the real world Summarizes the latest developments in polymer nanocomposites and their applications in catalytic degradation, adsorptive removal and detection of contaminants in the environment Enables
researchers to stay ahead of the curve, with a full discussion of regulatory issues and potential new applications and materials in this area.

Applications of Advanced Oxidation Processes (AOPs) in Drinking Water Treatment - Antonio Gil 2018-07-03 This volume reviews the drinking water treatments in which AOPs display a high application potential. Firstly it reveals the typical supply sources and limitations of conventional technologies and critically reviews natural organic matter characterization and removal techniques, focusing mainly on AOP treatments. It then explores using AOPs for simultaneous inactivation/disinfection of several types of microorganisms, including highly resistant Cryptosporidium protozoa. Lastly, it discusses relevant miscellaneous topics, like the most promising AOP solid catalysts, the regime change of Fenton-like processes toward continuous reactors, the application of chemometrics for process optimization, the impact on disinfection byproducts and the tracing of toxicity during AOP treatments. This work is a useful reference for researchers and students involved in water technologies, including analytical and environmental chemistry, chemical and environmental engineering, toxicology, biotechnology, and related fields. It is intended to encourage industrial and public-health scientists and decision-makers to accelerate the application of AOPs as technological alternatives for the improvement of drinking water treatment plants.

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