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Wastewater Characteristics, Treatment and Disposal - Marcos Von Sperling 2007-03-30

Wastewater Characteristics, Treatment and Disposal is the first volume in the series Biological Wastewater Treatment, presenting an integrated view of water quality and wastewater treatment. The book covers the following topics: wastewater characteristics (flow and major constituents) impact of wastewater discharges to rivers and lakes overview of wastewater treatment systems complementary items in planning studies. This book, with its clear and practical approach, lays the foundations for the topics that are analysed in more detail in the other books of the series. About the series: The series is based on a highly acclaimed set of best selling textbooks. This international version is comprised by six textbooks giving a state-of-the-art presentation of the science and technology of biological wastewater treatment. Other titles in the series are: Volume 2: Basic Principles of Wastewater Treatment; Volume 3: Waste Stabilisation Ponds; Volume 4: Anaerobic Reactors; Volume 5: Activated Sludge and Aerobic Biofilm Reactors; Volume 6: Sludge Treatment and Disposal

Advanced Water Treatment - Mika Sillanpaa 2020-01-08

Advanced Water Treatment: Electrochemical Methods reviews the current state-of-the-art in the electrochemical-based methods for water treatment, the effectiveness of the electrochemical oxidation technique in inactivating different primary biofilm forming paper mill bacteria, as well as sulfide and organic material in pulp and paper mill wastewater in laboratory-scale batch experiments. Various electrodes are described, including boron-doped diamond, mixed metal oxide, PbO_2, and their impacts on inactivation efficiency of parameters, such as current density and initial pH or chloride concentration of synthetic paper machine water. The mechanisms of action of various electrodes in different systems are reported. The book is a source of information for environmental and chemical engineers due to the number of methods and industry-focused application cases and researchers who study the transition from a laboratory environment to practical applications. Includes the most recent research on advanced water treatment by electrochemical methods Describes the use of electrochemical cleaning of paper mill wastewaters Includes techniques for cleaning mining waters and removal of organic pollutants by electrochemical methods

Coagulation and Flocculation in Water and Wastewater Treatment - John Bratby 2006-10-15

Coagulation and Flocculation in Water and Wastewater Treatment provides a comprehensive account of coagulation and flocculation techniques and technologies in a single volume covering theoretical principles to practical applications. Thoroughly revised and updated since the 1st Edition it has been progressively modified and increased in scope to cater for the requirements of practitioners involved with water and wastewater treatment. A thorough gamut of treatment scenarios is attempted, including turbidity, color and organics removal, including the technical aspects of enhanced coagulation. The effects of temperature and ionic content are described as well as the removal of specific substances such as arsenic and phosphorus. Chemical phosphorus removal is dealt with in detail, Rapid mixing for efficient coagulant utilization, and flocculation are dealt with in specific chapters. Water treatment plant waste sludge disposal is dealt with in considerable detail, in an Appendix devoted to this subject. Invaluble for water scientists, engineers and students of this field, Coagulation and Flocculation in Water and Wastewater Treatment is a convenient reference handbook in the form of numerous examples and appended information.

Photobiogeochemistry of Organic Matter - Khan M.G. Mostofa 2012-12-15

Photoinduced processes, caused by natural sunlight, are key functions for sustaining all living organisms through production and transformation of organic matter (OM) in the biosphere. Production of hydrogen peroxide (H_2O_2) from OM is a primary step of photoinduced processes, because H_2O_2 acts as strong reductant and oxidant. It is potentially important in many aquatic reactions, also in association with photosynthesis. Allochthonous and autochthonous dissolved organic matter (DOM) can be involved into several photoinduced or biological processes. DOM subsequently undergoes several physical, chemical, photoinduced and biological processes, which can be affected by global warming. This book is uniquely structured to overview some vital issues, such as: DOM; H_2O_2 and ROOH; $HO\bullet$; Degradation of DOM; CDOM, FDOM; Photosynthesis; Chlorophyll; Metal complexation, and Global warming, as well as their mutual interrelationships, based on updated scientific results.

Hybrid Artificial Intelligent Systems - Francisco Martínez-Álvarez

2016-04-14

This volume constitutes the refereed proceedings of the 11th International Conference on Hybrid Artificial Intelligent Systems, HAIS 2016, held in Seville, Spain, in April 2016. The 63 full papers published in this volume were carefully reviewed and selected from 150 submissions. They are organized in topical sections on data mining and knowledge discovery; time series; bio-inspired models and evolutionary computation; learning algorithms; video and image; classification and cluster analysis; applications; bioinformatics; and hybrid intelligent systems for data mining and applications.

Water and Society IV - C.A. Brebbia 2017-08-30

This volume presents papers from the 4th International Conference on Water & Society. The focus of the conference was to encourage trans-disciplinary communication on issues related to the nature of water, and its use and exploitation by society. The valuable research contained in this book demonstrates the need to bridge the gap between specialists in physical sciences, biology, environmental sciences and health. The availability of clean and inexpensive water can no longer be taken for granted as the need for water continues to increase due a growing global population. Heavy water consumers such as agriculture and industry often contribute to its contamination. Water distribution networks in urban areas and soiled water collection systems, present serious problems as well as the need to maintain ageing infrastructures. Possible technologically solutions, such as desalination or pumping systems are energy demanding but, as costs rise, the techniques currently developed may need to be re-assessed. The following list covers some of the subjects included in this book: Water resources management; Agribusiness; Water as a human right; Water quality; Water resources contamination; Sanitation and health; Water and disaster management; Policy and legislation; Future water demands; Irrigation and water management; Management of catchments; Groundwater management and conservation.

Technical and Economical Optimization of a Batch Membrane Process for Olive Mill Wastewater Treatment Characterized by Different Pretreatment Steps - Maria Auría Rasclosa 2014

Olive Mill Wastewater is a heavy polluted liquid stream exiting the olive oil production process. It is a critical environmental problem due to the quantity of organic and inorganic matter that contains. Lots of studies have been done in order to improve the treatment of this wastewater. This thesis has been focused in the treatment of OMWW by an ultrafiltration process preceded by different pretreatments as sieving, coagulation-flocculation or photocatalysis. Different variants of the treatments have been carried out; two samples of OMWW have been treated using HNO3 as reagent, one pretreated just by a coagulation-flocculation and the other also with a photocatalytic process, and two other samples using H2SO4, also one pretreated by just a coagulation-flocculation process and the other also by a photocatalytic process. Comparing the different variants of the treatment has been seen that for those treatments using HNO3 as reagent the COD of the Ultrafiltration feedstream is lower when besides the flocculation it has also been done the photocatalysis. This fact does not happen for the samples treated using H2SO4 because the photocatalysis carried out using H2SO4 has a really low COD reduction. Concerning the economic costs, it has been observed that the treatments using HNO3 are more expensive than the ones using H2SO4 and that the photocatalysis increases considerably the cost of the treatment. Moreover, has been studied the evolution of the treatment cost when the volume of OMWW treated increase, and it has been seen that the costs tend to stabilize quickly after an abrupt reduction at the beginning. After a comparison between the treatment costs and the cost of the OMWW scattering has been observed that from a small amount of OMWW, its treatment is more profitable than its scattering both in economic and environmental terms. Future research is needed for a better understanding of the behavior of H2SO4 as reagent because it could be a good economical alternative in the treatment of OMWW.

Carbon Nanomaterial-Based Adsorbents for Water Purification - Suprakas Sinha Ray 2020-06-27

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

The Scientific Basis of Flocculation - K.J. Ives 2012-12-06

K.J. Ives Professor of Public Health Engineering University College London The aggregation of small particles in liquids, to form flocs which are large enough to settle, or to be filtered, is a common operation in industrial processes, and water and wastewater treatment. This aggregation, given the general title fllioccula tion in this book, may be brought about by the addition of chemicals to reduce the stability of the original suspension, by neutralising electrical forces of repulsion, by the addition of chemicals (polymers) to link particles by bridging action, by the addition of chemicals which form particles to increase collision proba bilities, and by the input of energy leading to hydrodynamically induced collisions. The particles undergoing flocculation may range from colloidal in the nanometer size range, through micro scopic (micron) size, up to visible particles in the millimeter size range; that is a total size range of six orders of magnitude. Consequently the colloid chemist and the hydrodynamicist are both concerned with the interactions that take place, and to them the engineer must turn, to obtain the fundamental information ne cessary for the process design and its associated hardware.

Advances in Information Technology and Education - Honghua Tan 2011-06-30

This two-volume set (CCIS 201 and CCIS 202) constitutes the refereed proceedings of the International Conference on Computer Science and Education, CSE 2011, held in Qingdao, China, in July 2011. The 164 revised full papers presented in both volumes were carefully reviewed and selected from a large number of submissions. The papers address a large number of research topics and applications: from artificial intelligence to computers and information technology; from education systems to methods research and other related issues; such as: database technology, computer architecture, software engineering, computer graphics, control technology, systems engineering, network, communication, and other advanced technology, computer education, and life-long education.

Biopolymers - Susheel Kalia 2011-09-26

This handbook focuses on biopolymers for both environmental andbiomedical applications. It shows recent advances intechnology in all areas from chemical synthesis or biosynthesis toend use applications. These areas have not been covered in a singlebook before and they include biopolymers for chemical andbiotechnological modifications, material structures,characterization, processing, properties, and applications. After the introduction which summarizes the importance ofbiopolymer in the market, the book covers almost all the topicsrelated to polysaccharides, biofibers, bioplastics, biocomposites,natural rubber, gums, bacterial and blood compatible polymers, andapplications of biopolymers in various fields.

Chemical Water and Wastewater Treatment VII - Hermann H. Hahn 2002-05-31

Treating potable and polluted water for the world's population is still one of our most important challenges. The United Nations estimate that more than 1.2 billion people suffer from inadequate water supply and an even larger number, up to 4 billion people, are without hygienic disposal of waste and wastewater. Water technology and the necessary "know-how transfer", has been the key objective of the Gothenburg symposia from the very beginning. The contents of this book respond to these challenges and demonstrate the impressive development of the field of chemical waster and wastewater treatment. The Chemical Water and Wastewater Treatment Series provides authoritative coverage of the key current developments in the chemical treatment of water and wastewater in theory or practice and related problems such a s sludge production and properties, and the reuse of chemicals and chemically-treated waters and sludges. For the tenth in the series, the contributions document the development if the field of chemical water and wastewater technology, both in terms of new technological developments as well as public and administrative acceptance and approval of the solutions offered. Such new developments include the use of membrane technology, the application of computational tools for kinetic process modelling and optimisation as well as the use of advanced oxidation processes in actual water treatment. Chemical Water and Wastewater Treatment VII covers fundamental science, new technological developments and practical experience and is an invaluable reference source for engineers scientists and administrators, active in the treatment of drinking water, municipal and industrial wastewater and sludges.

MSCEIS 2019 - Lala Septem Riza 2020-07-30

The 7th Mathematics, Science, and Computer Science Education International Seminar (MSCEIS) was held by the Faculty of Mathematics and Natural Science Education, Universitas Pendidikan Indonesia (UPI) and the collaboration with 12 University associated in Asosiasi MIPA LPTK Indonesia (AMLI) consisting of Universitas Negeri Semarang (UNNES), Universitas Pendidikan Indonesia (UPI), Universitas Negeri Yogyakarta (UNY), Universitas Negeri Malang (UM), Universitas Negeri Jakarta (UNJ), Universitas Negeri Medan (UNIMED), Universitas Negeri Padang (UNP), Universitas Negeri Manado (UNIMA), Universitas Negeri Makassar (UNM), Universitas Pendidikan Ganesha (UNDHIKSA), Universitas Negeri Gorontalo (UNG), and Universitas Negeri Surabaya (UNESA). In this year, MSCEIS 2019 takes the following theme: "Mathematics, Science, and Computer Science Education for Addressing Challenges and Implementations of Revolution-Industry 4.0" held on October 12, 2019 in Bandung, West Java, Indonesia.

13th International Symposium on Process SystemsEngineering – PSE 2018, July 1-5 2018 - Mario R. Eden 2018-07-19

Process Systems Engineering brings together the international community of researchers and engineers interested in computing-based methods in process engineering. This conference highlights the contributions of the PSE community towards the sustainability of modern society and is based on the 13th International Symposium on Process Systems Engineering PSE 2018 event held San Diego, CA, July 1-5 2018. The book contains contributions from academia and industry, establishing the core products of PSE, defining the new and changing scope of our results, and future challenges. Plenary and keynote lectures discuss real-world challenges (globalization, energy, environment and health) and contribute to discussions on the widening scope of PSE versus the consolidation of the core topics of PSE. Highlights how the Process Systems Engineering community contributes to the sustainability of modern society Establishes the core products of Process Systems Engineering Defines the future challenges of Process Systems Engineering

Sustainable Water and Wastewater Processing - Charis M. Galanakis 2019-05-08

Sustainable Water and Wastewater Processing covers the 12 most current topics in the field of sustainable water processing, with emphasis given to water as a resource (quality, supply, distribution, and aquifer recharge). Topics covered include emerging sustainable technologies for potable and wastewater treatment, water reuse and recycling, advanced membrane processes, desalination technologies, integrated and hybrid technologies, process modeling, advanced oxidative and catalytic processes, environmentally, economically and socially sustainable technology for water treatment, industrial water treatment, reuse and recovery of materials, and emerging nanotechnology and biotechnology for water processing. Responding to the goals of sustainability requires the maximum utilization of all water resources, water processing with restricted energy costs and reduced greenhouse gas production. Following these trends, this book covers all the important aspects of sustainable water processing and support. Covers cutting-edge topics of water process engineering, sustainability and energy efficiency Fills the transfer knowledge gap between academia and industry by analyzing the associated environmental, economic and sustainability challenges of water processing Includes theoretical and applied research and technological and industrial solutions for sustainable, economic and large scale water treatment, recycling and reutilization Analyzes potentiality and economic feasibility of already commercialized processes

Advances in Wastewater Treatment I - Vimal Gandhi 2021-02-15

The book presents new materials and methods for waste water treatments; including advanced oxidation processes, membrane technologies, detection and removal of heavy metals and organic compounds, and the use of nanomaterials, low cost adsorbents and bio flocculants. Keywords: Wastewater Treatment, Organic Molecule Degradation, Bio Flocculants, Coagulants, Pyrene, Pharmaceutical Compounds, Photocatalytic Degradation, Nanocrystalline Titanium Dioxide, Arsenic Removal, Membrane Technology, Activated Charcoal, Adsorbent Derived from Egg Shells, Degradation of Polycyclic Aromatic Hydrocarbons, Colorimetric Analysis, Luminescence, Spectroscopy, Atomic Absorption, Mass Spectrometric and Biosensor Based Techniques.

Handbook of Research on Resource Management for Pollution and Waste Treatment - Affam, Augustine Chioma 2019-10-25

It is necessary to understand the extent of pollution in the environment in terms of the air, water, and soil in order for both humans and animals to live healthier lives. Poor waste treatment or pollution monitoring can lead to massive environmental issues, such as diminishing valuable resources, and cause a significant negative impact on society. Solutions, such as reuse of waste and sustainable waste management, must be explored to prevent these adverse effects. The Handbook of Research on Resource Management for Pollution and Waste Treatment is a collection of innovative research that examines waste and pollution treatment methods that can be adopted at local and international levels and examines appropriate resource management strategies for environmentally related issues. Featuring coverage on a wide range of topics such as soil washing, bioremediation, and runoff handling, this book is ideally designed for environmentalists, engineers, waste management professionals, natural resource regulators, environmental policymakers, scientists, academicians, researchers, and students seeking current research on viable resource management methods for the regeneration of their immediate environment.

Advanced Intelligent Systems for Sustainable Development (AI2SD'2018) - Mostafa Ezziyyani 2019-02-13

This book gathers papers presented at the International Conference on Advanced Intelligent Systems for Sustainable Development (AI2SD-2018), which was held in Tangiers, Morocco on 12–14 July 2018. It highlights how advanced intelligent systems have successfully been used to develop tools and techniques for modeling, prediction and decision support in connection with the environment. Though chiefly intended for researchers and practitioners in advanced intelligent systems for sustainable development, the book will also be of interest to those working in environment and the Internet of Things, environment and big data analysis, summarization, prediction, remote sensing & geo-information, geophysics, marine and coastal environments, and sensor networks for environment services.

Regional Conference on Science, Technology and Social Sciences (RCSTSS 2016) - Nor Azizah Yacob 2018-05-26

This book gathers selected theoretical and applied science papers presented at the 2016 Regional Conference of Sciences, Technology and Social Sciences (RCSTSS 2016), organized biannually by the Universiti Teknologi MARA Pahang, Malaysia. Addressing a broad range of topics, including architecture, computer science, engineering, environmental and management, furniture, forestry, health and medicine, material science,

mathematics, plantation and agrotechnology, sports science and statistics, the book serves as an essential platform for disseminating research findings, and inspires positive innovations in the region's development. The carefully reviewed papers in this volume present work by researchers of local, regional and global prominence. Taken together, they offer a valuable reference guide and point of departure for all academics and students who want to pursue further research in their respective fields.

Proceedings of the Third International Symposium on Materials and Sustainable Development - Benmounah Abdelbaki 2018-07-21

The third International Symposium on Materials and Sustainable Development ISMSD2017 (CIMDD2017) will include a 2-day Conferences (07 & 08 November). Organized by the Research Unit: Materials, Processes and Environment and University M'hamed Bougara of Boumerdes, this symposium follows the success of CIMDD 2013-2015 and continues the traditions of the highly successful series of International Conferences on the materials, processes and Environment. The Symposium will provide a unique topical forum to share the latest results of the materials and sustainable development research in Algeria and worldwide.

Water Pollution XIII - C.A. Brebbia 2016-08-19

Water Pollution XIII is the proceedings of the 13th International Conference in the series of Modelling, Monitoring and Management of Water Pollution. The conference, which has always been very successful, provided a forum for discussion amongst scientists, managers and academics from different areas of water contamination. Their papers, included in this book, provide a wealth of information which will be of great benefit to all those involved with water pollution problems. The environmental problems caused by the increase of pollutant loads discharged into natural water bodies requires the formation of a framework for regulation and control. This framework needs to be based on scientific results that relate pollutant discharge with changes in water quality. The results of these studies allow industry to apply more efficient methods of controlling and treating waste loads, and water authorities to enforce appropriate regulations regarding this matter. Environmental problems are essentially interdisciplinary. Engineers and scientists working in this field must be familiar with a wide range of issues, including the physical processes of mixing and dilution, chemical and biological processes, mathematical modelling, data acquisition and measurement, to name but a few. In view of the scarcity of available data, it is important that experiences are shared on an international basis. Thus, a continuous exchange of information between scientists from different countries is essential. Topics covered include: Monitoring, modelling and forecasting; Freshwater quality; Marine water quality; Groundwater and aquifer issues; Water management; Remediation; Agricultural contamination; Wastewater treatment and management; Offshore pollution and oil spills; Mining and water quality; Soil erosion and water pollution; Emerging technologies; Health risk studies; Micropollution and nanoparticles; Microbiological aspects; Risk assessments; Socio-economic-political consequences; Education and training; Population and climate change; Future trends in water pollution; Emerging approaches for water waste management.

Artificial Intelligence - Marco Antonio Aceves-Fernandez 2018-06-27

Artificial intelligence (AI) is taking an increasingly important role in our society. From cars, smartphones, airplanes, consumer applications, and even medical equipment, the impact of AI is changing the world around us. The ability of machines to demonstrate advanced cognitive skills in taking decisions, learn and perceive the environment, predict certain behavior, and process written or spoken languages, among other skills, makes this discipline of paramount importance in today's world. Although AI is changing the world for the better in many applications, it also comes with its challenges. This book encompasses many applications as well as new techniques, challenges, and opportunities in this fascinating area.

Recent Advances in Environmental Science from the Euro-Mediterranean and Surrounding Regions - Amjad Kallel 2017-12-12

This volume includes the papers presented during the 1st Euro-Mediterranean Conference for Environmental Integration (EMCEI) which was held in Sousse, Tunisia in November 2017. This conference was jointly organized by the editorial office of the Euro-Mediterranean Journal for Environmental Integration in Sfax, Tunisia and Springer (MENA Publishing Program) in Germany. It aimed to give a more concrete expression to the Euro-Mediterranean integration process by supplementing existing North-South programs and agreements with a new multilateral scientific forum that emphasizes in particular the vulnerability and proactive remediation of the Euro-Mediterranean region from an environmental point of view. This volume gives a general and brief overview on current research focusing on emerging environmental issues and challenges and its applications to a variety of problems in the Euro-Mediterranean zone and surrounding regions. It contains over five hundred and eighty carefully refereed short contributions to the conference. Topics covered include (1) innovative approaches and methods for environmental sustainability, (2) environmental risk assessment, bioremediation, ecotoxicology, and environmental safety, (3) water resources assessment, planning, protection, and management, (4) environmental engineering and management, (5) natural resources: characterization, assessment, management, and valorization, (6) intelligent techniques in renewable energy (biomass, wind, waste, solar), (7) sustainable management of marine environment and coastal areas, (8) remote sensing and GIS for geo-environmental investigations, (9) environmental impacts of geo/natural hazards (earthquakes, landslides, volcanic, and marine hazards), and (10) the environmental health science (natural and social impacts on Human health). Presenting a wide range of topics and new results, this edited volume will appeal to anyone working in the subject area, including researchers and students interested to learn more about new advances in

environmental research initiatives in view of the ever growing environmental degradation in the Euro-Mediterranean region, which has turned environmental and resource protection into an increasingly important issue hampering sustainable development and social welfare.

Chitin-Chitosan - Rajendra Dongre 2018-07-18

Chitin is the second most abundant biopolymer after cellulose and is a resourceful copious and cheap biomaterial discovered in 1859 owing to significant industrial and technological utility. Raw chitin-chitosan resembles keratin in its biological functions. Chitin chemistry vastly developed via innate unparalleled biological features and exceptional physicochemical characters. Chitosan endures assorted chemical/physical modifications easily at free proactive functionalities, yet intact bulk properties are achieved through processing, viz., film, membrane, composite, hybrid, nanofibre, nanoparticle, hydrogel and scaffolds. Rapidly lessen bioresources signify chitosan as an option due to renewable eco-friendliness and drive embryonic myriad applications in S

The United Nations World Water Development Report – N° 5 - 2014 - UNESCO 2014-03-21

The WWDR 2014 on Water and Energy is now an annual and thematic report with a focus on different strategic water issues each year. It is shorter in the order of 100 pages with a standardized structure and data and case studies annexes related to the theme. The WWDR 2014 will be launched during the main World Water Day celebrations in Tokyo, Japan on 21 March 2014. Water and energy are closely interconnected and highly interdependent. Trade-offs need to be managed to limit negative impacts and foster opportunities for synergy. Water and energy have crucial impacts on poverty alleviation both directly, as a number of the Millennium Development Goals depend on major improvements in access to water, sanitation, power and energy sources, and indirectly, as water and energy can be binding constraints on economic growth the ultimate hope for widespread poverty reduction. This fifth edition of the United Nations World Water Development Report (WWDR 2014) seeks to inform decision-makers

Water Treatment - American Water Works Association 2003

This completely updated version discusses such topics as raw water quality, treatment options, treatment chemicals, and drinking water regulations. It includes detailed illustrations, photographs, supplemental reading lists, a glossary, and an index.

From Sources to Solution - A.Z. Aris 2013-11-01

Featuring the theme, From Sources to Solution, this book is based on the research papers presented during the International Conference on Environmental Forensics 2013. It covers multi-disciplinary areas of environmental forensics featuring major themes: characterization, assessment, and monitoring; new approach, rapid assessment, and analytical techniques; pollution control technology; environmental health risk assessment; and policy, governance and management. It present information for researchers from the science and social sciences disciplines and contribute to the advancement of Environmental Forensics. It also aims at evaluating the environmental damages as the result of indiscriminating discharge of toxic environmental pollutants.

Optimization of Micro Processes in Fine Particle Agglomeration by Pelleting Flocculation - Benjamin Oyegbile 2016-06-22

Efficient particle separation in order to meet stringent regulatory standards represent one of the biggest challenges facing the process industry operators today. Emerging environmental problems such as climate change, population growth and natural resource depletion make it more compelling to undertake research into alternative phase separation techniques and optimization of existing ones. Meeting this challenge requires innovative, revolutionary and integrated approach in the design and optimization of various unit processes in fine particle separation. Flocculation is widely used as an effective phase separation technique across many process industries such as water and wastewater treatment and in minerals processing. In this work, a new pre-treatment technique was developed using a patented bench scale reactor unit as a technical proof of concept. Furthermore, the book provides a valuable insight into the hydrodynamics and fluid-particle interactions within the agglomeration units. The relatively high solids content of the stable pellets (approximately 30 %) and very low residual turbidity of the post-sedimentation supernatant (7 NTU) clearly demonstrate the potential of this technique. In addition to significantly improving the subsequent solid-liquid separation efficiency, this study also showed that the effluent can be recycled back into the sewer network or utilized for non-portable reuse. The findings obtained from this research will be extremely useful in the scaling up and optimization of the reactor system.

Filtration - Richard J. Wakeman 1999

This text aims to inform engineers about the available equipment options for solid-liquid separation, put these into classifications, and to present applicable models so that meaningful design and simulation calculations can be carried out.

Hematologic Agents—Advances in Research and Application: 2012 Edition - 2012-12-26

Hematologic Agents—Advances in Research and Application: 2012 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Hematologic Agents. The editors have built Hematologic Agents—Advances in Research and Application: 2012 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Hematologic Agents in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Hematologic Agents—Advances in Research and Application: 2012 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed

sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Engineering Technologies for Renewable and Recyclable Materials - Jithin Joy 2018-10-03

This new resource focuses on many recent advances in recycling and reuse of materials, outlining basic tools and novel approaches. It covers such important issues as e-waste recycling, bio-mass recycling, vermitechnology, recovery of metals, polymer recycling, environmental remediation, waste management, recycling of nanostructured materials, and more. Also included is coverage of new research in the use of laser spectroscopy, pyrolysis, and recycled biomaterials for biomedical applications.

Encyclopedia of Polymer Applications, 3 Volume Set - Munmaya Mishra 2018-12-17

Undoubtedly the applications of polymers are rapidly evolving. Technology is continually changing and quickly advancing as polymers are needed to solve a variety of day-to-day challenges leading to improvements in quality of life. The Encyclopedia of Polymer Applications presents state-of-the-art research and development on the applications of polymers. This groundbreaking work provides important overviews to help stimulate further advancements in all areas of polymers. This comprehensive multi-volume reference includes articles contributed from a diverse and global team of renowned researchers. It offers a broad-based perspective on a multitude of topics in a variety of applications, as well as detailed research information, figures, tables, illustrations, and references. The encyclopedia provides introductions, classifications, properties, selection, types, technologies, shelf-life, recycling, testing and applications for each of the entries where applicable. It features critical content for both novices and experts including, engineers, scientists (polymer scientists, materials scientists, biomedical engineers, macromolecular chemists), researchers, and students, as well as interested readers in academia, industry, and research institutions.

Advanced Intelligent Systems for Sustainable Development (AI2SD'2019) - Mostafa Ezziyyani 2020-01-03

This book summarizes the latest research on advanced intelligent systems in the fields of energy and electrical engineering, presented at the second edition of the International Conference on Advanced Intelligent Systems for Sustainable Development (AI2SD'2019), held in Marrakech from 8 to 11 July 2019, Morocco. This book is intended for researchers, professionals and anyone interested in the development of advanced intelligent systems in the electrical engineering sector. The solutions featured focus on three main areas: motion control in complex electromechanical systems, including sensorless control; fault diagnosis and fault-tolerant control of electric drives; and new control algorithms for power electronics converters. In addition, the book includes a range of research using new technologies and advanced approaches. Offering a platform for researchers in the field of energy to share their work related to the problem of management and optimization of energy, which is a major current concern, the book mainly focuses on areas that go hand in hand with the Industrial Revolution 4.0, such as solar energy computing systems, smart grids, hydroelectric power computing systems, thermal and recycling computing systems, eco-design intelligent computing systems, renewable energy for IT equipment, modeling green technology, and renewable energy systems in smart cities. The authors of each chapter report the state of the art in the topics addressed and the results of their own research, laboratory experiments, and successful applications in order to share the concept of advanced intelligent systems and appropriate tools and techniques for modeling, storage management, as well as decision support in the field of electrical engineering. Further, the book discusses a number of future trends and the potential for linking control theory, power electronics, artificial neural networks, embedded controllers and signal processing.

Jar Tests for Water Treatment Optimization - Martin Pivokonský 2022

The book is intended as a handbook providing detailed instructions for the correct conducting of jar tests, which are needed for the optimisation of the coagulation/flocculation process. It contains the essential theoretical background of coagulation/flocculation, including a description of the influence of different parameters on the coagulation efficiency of various impurities (e.g. pH value and type/dose of coagulant), and floc properties and their separation (e.g. mixing intensity, mixing time, but also type/concentration of coagulant and impurities). The principle of jar tests is explained and parameters possible to optimize (i.e. coagulation pH, coagulant dose, flocculation aid dose, mixing intensity and mixing time) are discussed. Laboratory equipment for jar tests is proposed, including mixers and instructions for calculating a mixing intensity (necessarily expressed by the global shear rate/velocity gradient G). Mixing intensities for various purposes are recommended. Detailed practical instructions of how to perform jar tests follow, including a determination of the dose of reagents for pH adjustment and coagulant dose, dosing sequence, floc separation after jar tests by sedimentation and/or centrifugation simulating sand filtration, sampling, measuring necessary parameters (pH, coagulant residuals, alkalinity, residual impurity concentrations etc.), data recording, data processing and jar test evaluation (with specific examples). The handbook also contains a supplementary part with tables for conversion of the molar to mass concentration (and vice versa) of coagulants, and instructions for diluting coagulants and reagents for pH adjustment.

Optimizing Water Treatment Plant Performance Using the Composite Correction Program - 1998

Encyclopedia of Surface and Colloid Science - - Arthur T. Hubbard

2002-07-18

This comprehensive reference collects fundamental theories and recent research from a wide range of fields including biology, biochemistry, physics, applied mathematics, and computer, materials, surface, and colloid science-providing key references, tools, and analytical techniques for practical applications in industrial, agricultural, and forensic processes, as well as in the production of natural and synthetic compounds such as foods, minerals, paints, proteins, pharmaceuticals, polymers, and soaps.

Use of Online Monitoring Instrumentation for Coagulation Optimization - Monica McVicar 2014

ICSBE 2020 - Ranjith Dissanayake 2021-10-24

This book highlights the latest knowledge and innovations in the field of civil engineering and construction industry striving for a sustainable built environment. It includes recent innovative findings from the proceedings of the 11th ICSBE 2020 under the themes of sustainable tall buildings, sustainable bridge construction and maintenance, waste in construction industry, sustainable manufacturing and recycling, disaster risk reduction for sustainable built environment, green innovations and entrepreneurship, sustainable water management in developing countries, water pollution and CKDu, sustainable urban environment and social well-being, and many greener and sustainable resource and energy-efficient innovative research findings.

Coagulation and Flocculation, Second Edition - Bohuslav Dobias 2005-03-30

First published in 1993, Coagulation and Flocculation is a practical reference for the researchers in the field of the stabilization and destabilization of fine solid dispersions. By omitting chapters that remained unchanged from the first edition, the editors of this second edition completely update, rewrite, and expand upon all chapters to reflect a decade of the latest advances in both theoretical and application aspects of the field. The authors provide expanded material that includes dissociation from a solid surface with independent sites; improvements to the Gouy-Chapman model; electrical double layer, surface ionization, and surface heterogeneity; thin liquid films and modeling of a semi-batch process using microprocesses probabilities; and clay mineral intracrystalline reactions, applications, and gelation. New chapters cover homopolymers and their effect on colloid stability, including never before published figures and equations; the stability of suspensions in the presence of surfactants, polymers, and mixtures; and the flocculation and dewatering of fine-particle suspensions, emphasizing floc formation, growth, structure, and applications. The second edition of Coagulation and Flocculation effectively captures both the theoretical and application aspects of the latest advances in the evolving field of solid dispersions, suspensions, and mixtures.

Mixing in Coagulation and Flocculation - AWWA Research Foundation 1991