
Anaerobic Biotechnology For Industrial Wastewaters

Wastewater Treatment

Biological Treatment of Industrial Wastewater

New Developments in Industrial Wastewater Treatment

Anaerobic Biotechnology for Bioenergy Production

Anaerobic Biotechnology and Odor/corrosion Control for Municipalities and Industries

Advanced and Innovative Approaches of Environmental Biotechnology in Industrial Wastewater Treatment

Waste Water

Biotechnology in Industrial Waste Treatment and Bioremediation

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Industrial Wastewater and Best Available Treatment Technologies

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Microbial Wastewater Treatment

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Biogranulation Technologies for Wastewater Treatment

Combined Application of Physico-Chemical & Microbiological Processes for Industrial Effluent Treatment Plant

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Advances in Biological Treatment of Industrial Waste Water and their Recycling for a Sustainable Future

Phycology-Based Approaches for Wastewater Treatment and Resource Recovery

Waste Treatment in the Biotechnology, Agricultural and Food Industries

Advances in the Domain of Environmental Biotechnology

Design of Anaerobic Processes for Treatment of Industrial and Municipal Waste, Volume VII

Focus on Biotechnology Research

Biotreatment of Industrial Effluents

Anaerobic Biotechnology

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Current Developments in Biotechnology and Bioengineering

Anaerobic Digestion Processes in Industrial Wastewater Treatment

Anaerobic Waste-Wastewater Treatment and Biogas Plants

Current Developments in Biotechnology and Bioengineering

Anaerobic Biotechnology

Anaerobic Digestion

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Advanced Biological Treatment Processes
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Wastewater Treatment

Elsevier

Microbial granules have practical importance in anaerobic and aerobic biological wastewater treatment. Advantages of granules are retention of biomass in reactor, diversity of microorganisms, complex structure, and resistance to unfavorable conditions. Microbial granules can be used to treat municipal and industrial wastewater for removal of organic matter, xenobiotics, nutrients, and heavy metals. The book covers almost all aspects of formation and use of microbial granules in wastewater treatment. The data on aerobic microbial granulation are related mostly to laboratory systems due to few pilot systems in the world using aerobic microbial granules. However, by the analogy with anaerobic granulation, which is now used worldwide, it is possible to predict wide

applications of aerobic granulation. This book will help researchers and engineers develop these new biotechnologies of wastewater treatment based on aerobic granulation. Covers all aspects of formation, organization, and use of microbial granules in wastewater treatment Integrates engineering, microbiology, and biotechnology of microbial granules Comprises of deep fundamental data as well as practical information for applications of microbial granules in wastewater treatment

Biological Treatment of Industrial Wastewater

Elsevier

Microbial Wastewater Treatment focuses on the exploitation of microorganisms as decontaminating tools to treat polluted wastewater, a worldwide concern. Microorganism-based processes are seen as promising technologies to treat the ever-increasing problem of polluted wastewater. The book covers recently developed process technologies to solve five major trends in

the field of wastewater treatment, including nutrient removal and recovery, trace organic compounds, energy saving and production, sustainability and community involvement. Illustrates the importance of microorganisms in wastewater treatment Points out the reuse of the treated wastewater Highlights the recovery of resources from wastewater Pays attention to the occurrence of novel micro-pollutants Introduces new trends in wastewater technology New Developments in Industrial Wastewater Treatment John Wiley & Sons There have been many significant microbiological, biochemical and technological advances made in the understanding and implementation of anaerobic digestion processes with respect to industrial and domestic wastewater treatment. Elucidation of the mechanisms of anaerobic degradation has permitted a greater control over the biological

parameters of waste conversion and the technical advances achieved have reduced the time and land area requirements and increased the cost-effectiveness and efficiency of the various processes presently in use. By product recovery in the form of utilisable methane gas has become increasingly feasible, while the development of new and superior anaerobic reactor designs with increased tolerance to toxic and shock loadings of concentrated effluents has established a potential for treating many extremely recalcitrant industrial wastestreams. The major anaerobic bioreactor systems and their applications and limitations are examined here, together with microbiological and biochemical aspects of anaerobic wastewater treatment processes. London, June 1986 S. M. Stronach T. Rudd J. N. Lester v Table of Contents
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Growth and Single Substrate Kinetics 4 1. 1. 2. 2 Multisubstrate Systems . 8 1. 2 Kinetics and Biochemistry of Hydrolysis 8 1. 3 Kinetics and Biochemistry of Fermentation and J1-Oxidation . 11 1. *Anaerobic Biotechnology for Bioenergy Production* APH Publishing
 With rampant industrialization, the management of waste generated by various industries is becoming a mammoth problem. Wastewater discharges from industrial and commercial sources may contain pollutants at levels that could affect the quality of receiving waters or interfere with potable water supplies. Thousands of small and large-scale industrial units dump their waste, which is often toxic and hazardous, in open spaces and nearby water sources. Over the last three decades, many cases of serious and permanent damage to the environment and human health on the part of these industries have come to the fore. This book mainly focuses on the biological treatment of wastewater from various industries, and provides detailed information on the sources and

characteristics of this wastewater, followed by descriptions of the biological methods used to treat them. Individual chapters address the treatment of wastewater from pulp and paper mills; tanneries; distilleries, sugar mills; the dairy industry; wine industry; textile industry; pharmaceutical industry; food processing industry; oil refinery/petroleum industry; fertilizer industry and beverage/ soft drink bottling industry; and include the characteristics of wastewater, evaluation of biological treatment methods, and recycling of wastewater. Easy to follow, with simple explanations and a good framework for understanding the complex nature of biological wastewater treatment processes, the book will be instrumental to quickly understanding various aspects of the biological treatment of industrial wastewater. It will serve as a valuable reference book for scientists, researchers, educators, and engineers alike.

Anaerobic Biotechnology and Odor/corrosion Control for Municipalities and Industries Springer
 Current Developments in

Biotechnology and Bioengineering: Biological Treatment of Industrial Effluents provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends in data-based scientific knowledge and advanced information on the role and application of environmental biotechnology and engineering in the treatment of industrial effluents. These treatment processes have been broadly classified under aerobic and anaerobic processes which determines the scope and level of pollutant removal. Chapters in this volume review the most recent developments and perspectives at different environmental cleanup operation scales. Outlines available biochemical processes for the treatment of solid industrial waste Covers aerobic and anaerobic treatments, their mechanisms, and selection criteria Highlights specific industrial applications, such as anammox processes

Advanced and Innovative Approaches of Environmental Biotechnology in

Industrial Wastewater Treatment Springer Science & Business Media
The past 30 years have seen the emergence of a growing desire worldwide that positive actions be taken to restore and protect the environment from the degrading effects of all forms of pollution—air, water, soil, and noise. 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 continues to exist, 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? This book is one of the volumes of the Handbook of Environmental Engineering series. The principal intention of this series is to help readers formulate answers to the last two questions above. 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, the realization of the ever-increasing complexity and interrelated nature of current environmental problems renders it imperative that intelligent planning of pollution abatement systems be undertaken.

Waste Water Elsevier Advanced Biological Treatment Processes for Industrial Wastewaters provides unique information relative to both the principles and applications of biological wastewater treatment systems for industrial effluents. Case studies document the application of biological wastewater treatment systems in different industrial sectors such as chemical, petrochemical, food-processing, mining, textile and fermentation. With more than 70 tables, 100 figures, 200 equations and several illustrations, the book provides a broad and deep understanding of the main aspects to

consider during the design and operation of industrial wastewater treatment plants.

Students, researchers and practitioners dealing with the design and application of biological systems for industrial wastewater treatment will find this book invaluable.

Biotechnology in Industrial Waste Treatment and Bioremediation

Elsevier Current Developments in Biotechnology and Bioengineering: Advanced Membrane Separation Processes for Sustainable Water and Wastewater Management -Anaerobic Membrane Bioreactor Processes and Technologies gives an up-to-date review on research developments of AnMBR systems (including hybrid systems) in wastewater treatment in terms of pollutants removal, nutrients recovery and energy production, as well as the achievement of energy efficiency of the process itself. The current challenges that hinder the application and industrialization of AnMBR technology, knowledge gaps and future research perspectives are also explained and discussed with potential strategies for solving problems. The

book is a potential resource for engineers, scientists, educators, students and general public to understand the current developments and future prospects in field of AnMBR research. Covers different aspects of AnMBR in wastewater treatment, such as fundamental knowledge, process design and evaluation, operation and optimization and applications Focuses on different AnMBR configurations and systems/hybrid systems in treating a large variety of wastewaters Provides state-of-the-art technology development of AnMBR technology, advantages and challenges, as well as the strategies to overcome the limitations Includes AnMBR technology in removing the priority substances (PSs) and emerging contaminants of environmental concern, as well as an evaluation of energy potentials in wastewater treatment

Advanced Biological Treatment Processes for Industrial Wastewaters

Springer Biological Treatment of Industrial Wastewater presents a comprehensive overview of the latest advances and trends in the use of bioreactors for

treating industrial wastewater.

Biotechnology for Waste and Wastewater Treatment

CRC Press

This CD-ROM presents the best available technologies needed to treat many kinds of industrial wastewaters. The publication shows how physical, chemical, and biological technologies are being modified and improved to meet or exceed removal and reduction criteria for pharmaceutical, chemical, textile, automotive, pulp, paper and other wastes.

Industrial Wastewater and Best Available Treatment Technologies

Noyes Publications

Anaerobic biotechnology is a cost-effective and sustainable means of treating waste and wastewaters that couples treatment processes with the reclamation of useful by-products and renewable biofuels. This means of treating municipal, agricultural, and industrial wastes allows waste products to be converted to value-added products such as biofuels, biofertilizers, and other chemicals.

Anaerobic Biotechnology for Bioenergy Production: Principles and Applications

provides the reader with basic

principles of anaerobic processes alongside practical uses of anaerobic biotechnology options. This book will be a valuable reference to any professional currently considering or working with anaerobic biotechnology options. *Current Developments in Biotechnology and Bioengineering* DEStech Publications, Inc Environmental protection and resource recovery are two crucial issues facing our society in the 21st century. Anaerobic biotechnology has become widely accepted by the wastewater industry as the better alternative to the more conventional but costly aerobic process and tens of thousands of full-scale facilities using this technology have been installed worldwide in the past two decades. Anaerobic Biotechnology is the sequel to the well-received *Environmental Anaerobic Technology: Applications and New Developments* (2010) and compiles developments over the past five years. This volume contains contributions from 48 renowned experts from across the world, including Gatzke Lettinga, laureate of the 2007 Tyler Prize and the 2009 Lee

Kuan Yew Water Prize, and Perry McCarty, whose pioneering work laid the foundations for today's anaerobic biotechnology. This book is ideal for engineers and scientists working in the field, as well as decision-makers on energy and environmental policies. Contents: Fundamentals: Anaerobic Digestion: About Beauty and Consolation (Willy Verstraete and Jo De Vrieze) Syntrophy in Anaerobic Digestion (Yoichi Kamagata) Microbial Community Involved in Anaerobic Purified Terephthalic Acid Treatment Process (Takashi Narihira, Masaru K Nobu, Ran Mei and Wen-Tso Liu) State-of-the-Art Anaerobic Ammonium Oxidation (Anammox) Technology (Xiaoming Ji, Yu-Tzu Huang, Qian Wang, Giin Yu Amy Tan, Jih-Gaw Lin and Po-Heng Lee) Application of Metagenomics in Environmental Anaerobic Technology (Feng Ju, Herbert H P Fang and Tong Zhang) Transformations and Impacts of Ammonia and Hydrogen Sulfide in Anaerobic Reactors (Yu-You Li and Wei Qiao) Modelling Anaerobic Digestion Processes (Damien J Batstone and

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of Animal Waste: From Laboratory, Research and Commercial Farms to A Value-Added New Product (Jason C H Shih) Role of Anaerobic Digestion in Increasing the Energy Efficiency and Energy Output of Sugar Cane Distilleries (Adrianus van Haandel and Jules B van Lier) With AnWT and AnDi Systems Towards a More Sustainable Society (Gatze Lettinga)

Readership: Academic research & professionals.

Keywords: Anaerobic; Biotechnology; Pollution Control; Resource; Recovery; Wastewater; Waste; Treatment; Digestion; Food; Chemical; Agricultural; Beverage; Biogas; Biofuel; Green Energy; Digestion; Sustainability; Biogas; Hydrogen; Methane; Production; Metagenome; Metagenomics; Modeling; Anammox; UASB; EGSB; Microbial Fuel Cell; MFC; Membrane Bioreactor; MBR; Syntroph; Stoichiometry; Equilibrium; Buffer; Ammonia; Sulfide; Fluidized Bed; Application; Development; Fundamental; Analysis; Development; Technology; Holistic; China; Brazil; Japan; Latin America; Asia; Taiwan; Distillery; Farm; Sugar Cane

Current Developments in Biotechnology and Bioengineering
Routledge

Algal and phycology-based approaches for wastewater treatment have recently gained interest. Phycology-Based Approaches for Wastewater Treatment and Resource Recovery highlights advanced algal-based technologies developed or being considered for wastewater treatment along with the opportunities that existing technologies can provide at an industrial scale. It covers recent findings on algal-based approaches for the removal of heavy metals, organic pollutants, and other toxicities from sewage and industrial effluents and supplies in-depth analysis on technologies such as biosorption and bioaccumulations. Advanced mathematical modeling approaches to understand waste removal and resource recovery from wastewater are illustrated as well. The book: Provides exhaustive information on the use of algae for the simultaneous treatment and resource recovery of wastewater Discusses algae, microalgae, and cyanobacteria applications in detail Presents critical insight into limitations of the prevalent technologies Reviews methodology of

advanced technologies Includes illustrations and interesting trivia boxes throughout the book This book is of interest to researchers, graduate students and professionals in phycology, microbiology, bioremediation, environmental sciences, biotechnology, wastewater treatment, resource recovery, and circular economy.

Microbial Wastewater Treatment Elsevier

With increasing government regulation of pollution, as well as willingness to levy punitive fines for transgressions, treatment of industrial waste is a important subject. This book is a single source of information on treatment procedures using biochemical means for all types of solid, liquid and gaseous contaminants generated by various chemical and allied industries. This book is intended for practicing environmental engineers and technologists from any industry as well as researchers and professors. The topics covered include the treatment of gaseous, liquid and solid waste from a large number of chemical and allied industries that include

dye stuff, chemical, alcohol, food processing, pesticide, pharmaceuticals, paint etc. Information on aerobic and anaerobic reactors and modeling and simulation of waste treatment systems are also discussed. *

Compares chemical and biochemical means of industrial waste treatment

* Provides details of technology (i.e. reactors, operating conditions etc) with regard to the biochemistry aspects. *

Can be used as a teaching aid for graduate courses and a reference material by practicing environmental scientists and engineers. *

Researchers can extract synergy between treatment procedures and various effluents.

Environmental Biotechnology Royal Society of Chemistry

Describes several types of anaerobic treatment for municipal and industrial wastewaters.

Anaerobic Ammonium Oxidation World Scientific

Bioremediation of Endocrine Disrupting Pollutants in Industrial Wastewater describes the occurrence and sources of endocrine disruptive pollutants (EDPs) in various industrial wastewaters. It discusses

the type of EDPs, their effects and detection and treatment methods and presents the fate and effect of EDPs, their quantitative and qualitative analysis in industrial wastewaters and treatment through conventional and advanced technologies. It also presents the most advanced and innovative approaches for the management of EDPs in industrial wastewaters. The book will be a vital source of information for the students and researchers who have interest in emerging pollutants, specifically endocrine disruptive pollutants for their treatment and management. Provides quantitative and qualitative analysis of EDPs in industrial wastewaters

Provides detailed information on the EDPs of the industrial wastewaters origin

Describes toxic and estrogenic effect of the EDPs on living organisms

Discusses the management of EDPs through sustainable, advanced and eco-friendly treatment process

Covers most advanced and innovative approaches for the management of EDPs in industrial wastewaters

Anaerobic Technology in

Pulp and Paper Industry
Walter de Gruyter GmbH & Co KG

A deeper insight into the complex processes involved in this field, covering the biological, chemical and engineering fundamentals needed to further develop effective methodologies. The book devotes detailed chapters to each of the four main areas of environmental biotechnology -- wastewater treatment, soil treatment, solid waste treatment, and waste gas treatment -- dealing with both the microbiological and process engineering aspects. The result is the combined knowledge contained in the extremely successful volumes 11a through 11c of the "Biotechnology" series in a handy and compact form.

Biogranulation Technologies for Wastewater Treatment
John Wiley & Sons

Biotechnology in Industrial Waste Treatment and Bioremediation addresses the increasingly important topic of waste treatment. Focusing on microbiological degradation of contaminants, it offers a representative picture of the current status of environmental biotechnology and lays a

solid foundation of the methods and applications of bioremediation. The expert presentations of case studies in this new book demonstrate successful treatment schemes and technologies meeting regulatory standards. These case studies represent an international cross-section of strategies for developing and implementing the evolving technologies of bioremediation. *Biotechnology in Industrial Waste Treatment and Bioremediation* examines the primary waste streams, including air, water, soils, and sediments, and explores specific treatment methodologies for industrial and environmental contaminants. This broad and unique coverage allows treatment firms and regulatory authorities to determine and develop

appropriate treatment strategies for site-specific problems of waste remediation. The observations and successful field applications compiled in *Biotechnology in Industrial Waste Treatment and Bioremediation* make it an excellent reference for understanding, evaluating, developing, and operating efficient and cost-effective full-scale treatment systems. *Combined Application of Physico-Chemical & Microbiological Processes for Industrial Effluent Treatment Plant* Nova Publishers
A newcomer to the scene, aerobic granulation is on its way to becoming the hot new technology for high-efficiency wastewater treatment. Thus far, intensive research has been conducted with regard to the understanding of the mechanism of aerobic

granulation in sequencing batch reactors (SBR) and its application in treating a wide variety of municipal Wastewater Purification
R.E. Speece
This book presents a state-of-the-art report on the treatment of pulp and paper industry effluents using anaerobic technology. It covers a comprehensive range of topics, including the basic reasons for anaerobic treatment, comparison between anaerobic and aerobic treatment, effluent types suitable for anaerobic treatment, design considerations for anaerobic treatment, anaerobic reactor configurations applied for treatment of pulp and paper industry effluents, present status of anaerobic treatment in pulp and paper industry, economic aspects, examples of full scale installations and future trends.

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