

2017 International Chemical Recovery Conference

A Comprehensive View

Selected Proceedings from the 232nd ECS Meeting: National Harbor, MD - Fall 2017

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2017 International Chemical Recovery Conference

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CONWAY WALLS

A Comprehensive View CRC Press

Biermann's Handbook of Pulp and Paper: Raw Material and Pulp Making, Third Edition is a comprehensive reference for industry and academia covering the entire gamut of pulping technology. This book provides a thorough introduction to the entire technology of pulp manufacture; features chapters covering all aspects of pulping from wood handling at the mill site through pulping and bleaching and pulp drying. It also includes a discussion on bleaching chemicals, recovery of pulping spent liquors and regeneration of chemicals used and the manufacture of side products. The secondary fiber recovery and utilization and current advances like organosolv pulping and attempts to close the cycle in bleaching plants are also included. Hundreds of illustrations, charts, and tables help the reader grasp the concepts being presented. This book will provide professionals in the field with the most up-to-date and comprehensive information on the state-of-the-art techniques and aspects involved in pulp making. It has been updated, revised and extended. Alongside the traditional aspects of pulping and papermaking processes, this book also focuses on biotechnological methods, which is the distinguishing feature of this book. It includes wood-based products and chemicals, production of dissolving pulp, hexenuronic acid removal, alternative chemical recovery processes, forest products biorefinery. The most significant changes in the areas of raw material preparation and handling, pulping and recycled fiber have been included. A total of 11 new chapters have been added. This handbook is essential

reading for all chemists and engineers in the paper and pulp industry. Provides comprehensive coverage on all aspects of pulp making Covers the latest science and technology in pulp making Includes traditional and biotechnological methods, a unique feature of this book Presents the environmental impact of pulp and papermaking industries Sets itself apart as a valuable reference that every pulp and papermaker/engineer/chemist will find extremely useful

Selected Proceedings from the 232nd ECS Meeting: National Harbor, MD - Fall 2017 Gulf Professional Publishing

Hybrid Enhanced Oil Recovery Using Smart Waterflooding explains the latest technologies used in the integration of low-salinity and smart waterflooding in other EOR processes to reduce risks attributed to numerous difficulties in existing technologies, also introducing the synergetic effects. Covering both lab and field work and the challenges ahead, the book delivers a cutting-edge product for today's reservoir engineers. Explains how smart waterflooding is beneficial to each EOR process, such as miscible, chemical and thermal technologies Discusses the mechanics and modeling involved using geochemistry Provides extensive tools, such as reservoir simulations through experiments and field tests, establishing a bridge between theory and practice

Saving Energy, Water and Resources ConferenceSeries

Heavy Oil Recovery and Upgrading covers properties, factors, methods and all current and upcoming processes, giving engineers, new and experienced, the full spectrum of recovery choices, including SAGD, horizontal well technology, and hybrid approaches. Moving on to the upgrading and refining of the product, the book also includes information on in situ upgrading, refining options, and hydrogen production. Rounding out with

environmental effects, management methods on refinery waste, and the possible future configurations within the refinery, this book provides engineers with a single source to make decisions and manage the full range of challenges. Presents the properties, mechanisms, screening criteria and field applications for heavy oil enhanced recovery projects Includes current upgrading options and future methods for refining heavy oil development Fills in the gaps between literature and practical application for everyday industry reference

Gulf Professional Publishing

This book addresses the gap between innovative technologies and their adoption. It showcases research, feasibility studies and projects that demonstrate a variety of ways to implement environmental sustainability in globally operating firms, as well as best practices in areas such as international management, adoption of cleaner technologies, global supply chains, greenhouse gas emission reduction, and transportation. The book provides state-of-the-art information on issues including: Global sustainable management practices Global sustainable food and agricultural markets Global responsible mining and energy Global sustainable sourcing Global sustainable transportation Global conservation innovations and investments Presenting expert contributions from industry, government and academia, discussing a variety of themes and perspectives on the topic "international business as a positive force of environmental sustainability" it is a vital resource for stakeholders in the international business community.

Steam Generation from Biomass CRC Press

A-Z of Biorefinery: A Comprehensive View provides a comprehensive book that highlights and illustrates important topics relating to biorefineries, including associated theory, current and future research trends, available techniques and future challenges. This book will benefit a wide range of audiences, including students, engineers, scientists, practitioners, and those who are keen to explore more on biorefinery. Sections cover the availability of current technologies, constraints, market trends, recent system developments, and the concepts that enable modern biorefineries to utilize all kinds of biomass. This book is an essential resource for students, scientists, engineers and practitioners working in industry and academia. Covers the most important topics relating to biorefineries Provides related definitions, theories, overviews of methods, applications and important references Offers perspectives and concise reviews for each section Includes complete design case studies with tutorials

Water-Formed Deposits Gulf Professional Publishing

Provides an easy-to-read introduction to the area of polymer flooding to improve oil production The production and utilization of oil has transformed our world. However, dwindling reserves are forcing industry to manage resources more efficiently, while searching for alternative fuel sources that are sustainable and environmentally friendly. Polymer flooding is an enhanced oil recovery technique that improves sweep, reduces water production, and improves recovery in geological reservoirs. This book summarizes the key factors associated with polymers and polymer flooding—from the selection of the type of polymer through characterization techniques, to field design and implementation—and discusses the main issues to consider when deploying this technology to improve oil recovery from mature reservoirs. Essentials of Polymer Flooding Technique introduces the area of polymer flooding at a basic level for those new to petroleum production. It describes how polymers are used to improve efficiency of “chemical” floods (involving surfactants and alkaline solutions). The book also offers a concise view of several key polymer-flooding topics that can't be found elsewhere. These are in the areas of pilot project design, field project engineering (water quality, oxygen removal, polymer dissolution equipment, filtration, pumps and other equipment), produced water treatment, economics, and some of the important field case histories that appear in the last section. Provides an easy to read introduction to polymer flooding to improve oil production whilst presenting the underlying mechanisms Employs “In A Nutshell” key point summaries at the end of each chapter Includes important field case studies to aid researchers in addressing time- and financial-consumption in dealing with this issue Discusses field engineering strategies appropriate for professionals working in field operation projects Essentials of Polymer Flooding Technique is an enlightening book that will be of great interest to petroleum engineers, reservoir engineers, geoscientists, managers in petroleum industry, students in the petroleum industry, and researchers in chemical enhanced oil recovery methods.

Metals in Wastes Walter de Gruyter GmbH & Co KG

This book aims at presenting, describing, and summarizing the latest advances in polymer flooding regarding the chemical synthesis of the EOR agents and the numerical simulation of compositional models in porous media, including a description of the possible applications of nanotechnology acting as a booster of traditional chemical EOR processes. A large part of the world economy depends nowadays on non-renewable energy sources, most of them of fossil origin. Though the search for and the development of newer, greener, and more sustainable sources have been going on for the last decades, humanity is still fossil-fuel dependent. Primary and secondary oil recovery techniques merely produce up to a half of the Original Oil In Place. Enhanced Oil Recovery (EOR) processes are aimed at further increasing this value. Among these, chemical EOR techniques (including polymer flooding) present a great potential in low- and medium-viscosity oilfields. • Describes recent advances in chemical enhanced oil recovery. • Contains detailed description of polymer flooding and nanotechnology as promising boosting tools for EOR. • Includes both experimental and theoretical studies. About the Authors Patrizio Raffa is Assistant Professor at the University of Groningen. He focuses on design and synthesis of new polymeric materials optimized for industrial applications such as EOR, coatings and smart materials. He (co)authored about 40 articles in peer reviewed journals. Pablo Druetta works as lecturer at the University of Groningen (RUG) and as engineering consultant. He received his Ph.D. from RUG in 2018 and has been teaching at a graduate level for 15 years. His research focus lies on computational fluid dynamics (CFD).

Hybrid Enhanced Oil Recovery Using Smart Waterflooding CRC Press

Sustainable world economy requires a steady supply of crude oil without any production constraints. Thus, the ever-increasing energy demand of the entire world can be mostly met through the enhanced production from crude oil from existing reservoirs. With the fact that newer reservoirs with large quantities of crude oil could not be explored at a faster pace, it will be inevitable to produce the crude oil from matured reservoirs at an affordable cost. Among alternate technologies, the chemical enhanced oil recovery (EOR) technique has promising potential to recover residual oil from matured reservoirs being subjected to primary and secondary water flooding operations. Due to pertinent complex phenomena that often have a combinatorial role and influence, the implementation of chemical EOR schemes such as alkali/surfactant/polymer flooding and their combinations necessitates upon a fundamental understanding of the potential mechanisms and their influences upon one another and desired response variables. Addressing these issues, the book attempts to provide useful screening criteria, guidelines, and rules of thumb for the identification of process

parametric sets (including reservoir characteristics) and response characteristics (such as IFT, adsorption etc.,) that favor alternate chemical EOR systems. Finally, the book highlights the relevance of nanofluid/nanoparticle for conventional and unconventional reservoirs and serves as a needful resource to understand the emerging oil recovery technology. Overall, the volume will be of greater relevance for practicing engineers and consultants that wish to accelerate on field applications of chemical and nano-fluid EOR systems. Further, to those budding engineers that wish to improve upon their technical know-how, the book will serve as a much-needed repository.

Volume 1: Raw Material and Pulp Making ConferenceSeries

Membranes are an energy efficient separation technology that are now the basis for many water treatment and food processing applications.

However, there is the potential to improve the operating performance of these separations and to extend the application of membranes to energy production, gas separations, organic solvent-based separations, and biomedical applications through novel membrane materials. This book contains 20 chapters written by leading academic researchers on membrane fabrication and modification techniques and provides a comprehensive overview on the recent developments of membrane technology. Membranes can be manufactured from a range of materials including polymeric compounds, and ceramic materials, and both these materials are considered in the book. There are 5 chapters on water and wastewater membranes that cover the fabrication of thin film (TFC) composite membranes for nanofiltration(NF)/reverse osmosis (RO)/forward osmosis (FO) applications, stimuli responsive membranes, electrospun membranes, porous ceramic membranes, and polymeric ultrafiltration (UF) manufacture and modification. There are another 6 chapters on gas separation that consider carbon membranes, zeolite membranes, silica template and metal oxide silica membranes, TFC membranes, silica membranes, and metal organic framework (MOF) membranes. Zeolite membranes are also considered for organic solvent applications, as are solvent-resistant membranes manufactured by phase inversion, ceramic-supported composite membranes, and ceramic NF membranes. The emerging areas of membranes for energy and biomedical applications have 3 and 2 chapters, respectively. Energy applications consider ion exchange membranes for use in fuel cells, membranes for electro dialysis, and membranes for use in microbial fuel cells. For biomedical applications the chapters focus on hemodialysis membranes and redox responsive membranes.

Sustainable Materials for Oil and Gas Applications Springer

Asphaltene Deposition Control by Chemical Inhibitors: Theoretical and Practical Prospects is the most advanced reference focused on chemical dispersants and inhibitors from both an experimental and modeling viewpoint. Adequate knowledge of the effective parameters in each treatment method, interactions, mechanisms and economic viewpoints involved in asphaltene treatment are crucial for future development, recovery forecast, and reserve prediction, hence this reference delivers on all these aspects. Sections cover the environmental impacts of asphaltene deposition, prevention methods, and experimental methods, both static and dynamic, to test the effectiveness of inhibitors on restricting asphaltene deposition. Rounding out with modeling methods used to simulate asphaltene-inhibitor interactions and a workflow to select suitable inhibitors by technical, economic and environmental considerations, this book will give today's engineers and researchers the right tool to mitigate formation damage in a sustainably responsible way. Focuses on inhibitors, mitigators and the interplay between the asphaltene-inhibitors Helps readers learn from experimental models and replicate treatments with screening workflows Includes case studies that help readers make sustainable and economically-sound decisions on treatments

Essentials of Polymer Flooding Technique John Wiley & Sons

This book is aimed to compile the distribution of rare earth elements in various resources with their processing from secondary resources. It includes details of various processes developed for extraction of rare earth elements from varied raw materials ranging from e-wastes, tailings, process wastes and residues. It emphasizes importance of processing of the secondary resources to assist environmental remediation of such untreated wastes and get finished products. It covers all aspects of rare metals and rare earth metals in one volume covering extraction, separation and recycling of secondary resources for extraction of these metals along with relevant case studies.

Heavy Oil Recovery and Upgrading Springer Nature

There have been many books on the topic of Enhanced Oil Recovery (EOR) over the last 100 years. They all, however, focus on how to recover more oil faster, taking a rather myopic approach. The solutions presented all work fantastically in theory and even in the laboratory, but each fails to produce results in the field with long-term success. The petroleum industry is almost resigned to the belief that for an EOR technique to be successful, it must be propped up with public funds or must compromise environmental integrity. In line with modern engineering practices, previous books discuss how existing technologies can be tweaked to accommodate for any shortcomings that just came to light. This book is unlike any other book on the topic of recovery in particular and engineering in general. This groundbreaking volume is a continuation of the author's and his research group's work that started publishing on the subject of global sustainability involving energy and the environment, dating back to early 2000s. Starting with a paradigm shift in engineering that involves a long-term focus, rather than looking for short-term solutions, the methods and theories presented here delve into applying green engineering and zero waste principles to EOR. Historically, EOR has received mixed success, mainly because innovations in these disciplines relied heavily on processed materials, which are both uneconomical and toxic to the environment. This book explains how engineers missed entirely the causes of unsustainability in these technologies due to the prevalence of many myths that are embedded in modern engineering. Once these myths are deconstructed, the appropriate technologies emerge and the merits of them both in terms of economic and environmental benefits become clear. The book reveals how previous practices in EOR can be replaced with their sustainable versions while saving in material costs. A number of innovative technologies are introduced that can render well known technologies, such as steam flood, in situ combustion, chemical flooding, and microbial EOR environmentally sustainable and economically attractive. A triple dividend is received once these technologies are applied in otherwise marginal reservoirs, unconventional plays and even abandoned formations. The overall reserve, which reflects recoverable oil with new technologies, goes up drastically. Further benefits are drawn when processes such as value addition of waste material is performed. Overall this book shows how EOR can be rendered green while increasing the profitability. This is in stark contrast to the past practices that considered environmental integrity as a drain on profitability. This book proves that a paradigm shift can turn a “technological disaster” into a technological marvel.

[A History of American Environmental Policy](#) Gulf Professional Publishing
[Energy Technology 2017](#) Carbon Dioxide Management and Other Technologies Springer

For Chemical and Energy Hubs Elsevier

This book examines the potential applications of nanoscience and nanotechnology to promote eco-friendly processes and techniques for energy and environment sustainability. Covering various aspects of both the synthesis and applications of nanoparticles and nanofluids for energy and environmental engineering, its goal is to promote eco-friendly processes and techniques. Accordingly, the book elaborates on the development of reliable, economical, eco-friendly processes through advanced nanoscience and technological research and innovations. Gathering contributions by researchers actively engaged in various domains of nanoscience and technology, it addresses topics such as nanoparticle synthesis (both top-down and bottom-up approaches); applications of nanomaterials, nanosensors and plasma discharge in pollution control; environmental monitoring; agriculture; energy recovery; production enhancement; energy conservation and storage; surface modification of materials for energy storage; fuel cells; pollution mitigation; and CO₂ capture and sequestration. Given its scope, the book will be of interest to academics and researchers whose work involves nanotechnology or nanomaterials, especially as applied to energy and/or environmental sustainability engineering. Graduate students in the same areas will also find it a valuable resource.

Innovative Heat Exchangers CRC Press

This collection focuses on energy efficient technologies including innovative ore beneficiation, smelting technologies, recycling and waste heat recovery. The volume also covers various technological aspects of sustainable energy ecosystems, processes that improve energy efficiency, reduce thermal emissions, and reduce carbon dioxide and other greenhouse emissions. Papers addressing renewable energy resources for metals and materials production, waste heat recovery and other industrial energy efficient technologies, new concepts or devices for energy generation and conversion, energy efficiency improvement in process engineering, sustainability and life cycle assessment of energy systems, as well as the thermodynamics and modeling for sustainable metallurgical processes are included. This volume also offers topics on CO₂ sequestration and reduction in greenhouse gas emissions from process engineering, sustainable technologies in extractive metallurgy, as well as the materials processing and manufacturing industries with reduced energy consumption and CO₂ emission. Contributions from all areas of non-nuclear and non-traditional energy sources, such as solar, wind, and biomass are also included in this volume. Papers from the following symposia are presented in the book: Energy Technologies Advances in Environmental Technologies: Recycling and Sustainability Joint Session Deriving Value from Challenging Waste Materials: Recycling and Sustainability Joint Session Solar Cell Silicon

[Oilfield Chemistry and its Environmental Impact](#) Conference Series

Metals in Wastes is an excellent guide for scientists, students, engineers, chemists, and industrial chemists who are looking for knowledge of the main sources of metals in industrial wastes. Metals are valuable materials that can be recycled again and again without degrading their properties. The recycling of metals enables us to preserve natural resources while requiring less energy to process than the manufacture of new products using virgin raw materials. A team of experts reviews the state-of-the-art and provides the readers not only with a comprehensive in-depth overview of the main composition of wastes but also discloses innovative methods which have been applied for recovery of critical and valuable metals in petrochemical industry, rubber, energy and automotive industries. This know-how could be considered as a useful reference tool for moving towards the zero-waste economy. Additionally, the book describes the economic aspects of metals recovery from various sources. This is essential for those already involved in the metals business and also for the financial, investment and advisory community internationally.

A-Z of Biorefinery John Wiley & Sons

Provides aspiring engineers with pertinent information and technological methodologies on how best to manage industry's modern-day environment concerns This book explains why industrial environmental management is important to human environmental interactions and describes what the physical, economic, social, and technological constraints to achieving the goal of a sustainable environment are. It emphasizes recent progress in life-

cycle sustainable design, applying green engineering principles and the concept of Zero Effect Zero Defect to minimize wastes and discharges from various manufacturing facilities. Its goal is to educate engineers on how to obtain an optimum balance between environmental protections, while allowing humans to maintain an acceptable quality of life. Industrial Environmental Management: Engineering, Science, and Policy covers topics such as industrial wastes, life cycle sustainable design, lean manufacturing, international environmental regulations, and the assessment and management of health and environmental risks. The book also looks at the economics of manufacturing pollution prevention; how eco-industrial parks and process intensification will help minimize waste; and the application of green manufacturing principles in order to minimize wastes and discharges from manufacturing facilities. Provides end-of-chapter questions along with a solutions manual for adopting professors Covers a wide range of interdisciplinary areas that makes it suitable for different branches of engineering such as wastewater management and treatment; pollutant sampling; health risk assessment; waste minimization; lean manufacturing; and regulatory information Shows how industrial environmental management is connected to areas like sustainable engineering, sustainable manufacturing, social policy, and more Contains theory, applications, and real-world problems along with their solutions Details waste recovery systems Industrial Environmental Management: Engineering, Science, and Policy is an ideal textbook for junior and senior level students in multidisciplinary engineering fields such as chemical, civil, environmental, and petroleum engineering. It will appeal to practicing engineers seeking information about sustainable design principles and methodology.

Proceedings of 2nd International Conference and Exhibition on Materials Science and Chemistry 2017 CRC Press

Fundamentals of Enhanced Oil and Gas Recovery from Conventional and Unconventional Reservoirs delivers the proper foundation on all types of currently utilized and upcoming enhanced oil recovery, including methods used in emerging unconventional reservoirs. Going beyond traditional secondary methods, this reference includes advanced water-based EOR methods which are becoming more popular due to CO₂ injection methods used in EOR and methods specific to target shale oil and gas activity. Rounding out with a chapter devoted to optimizing the application and economy of EOR methods, the book brings reservoir and petroleum engineers up-to-speed on the latest studies to apply. Enhanced oil recovery continues to grow in technology, and with ongoing unconventional reservoir activity underway, enhanced oil recovery methods of many kinds will continue to gain in studies and scientific advancements. Reservoir engineers currently have multiple outlets to gain knowledge and are in need of one product go-to reference. Explains enhanced oil recovery methods, focusing specifically on those used for unconventional reservoirs Includes real-world case studies and examples to further illustrate points Creates a practical and theoretical foundation with multiple contributors from various backgrounds Includes a full range of the latest and future methods for enhanced oil recovery, including chemical, waterflooding, CO₂ injection and thermal

[Biermann's Handbook of Pulp and Paper](#) Gulf Professional Publishing

Foams are ubiquitous in human life and can be found in a variety of products and materials, such as sodas and sponges. There are liquid foams and solid foams, both of which have distinct properties useful for various applications. This book reviews, researches, and summarizes the potential uses of foam fluids and porous foams in engineering, medicine, and other industries. Chapters discuss different types of foams including multiphase foams, cellular foams, and ceramic foams as well as foam-generating mechanisms and techniques.

Chemical Methods John Wiley & Sons

Polygeneration with Polystorage: For Energy and Chemicals addresses the problem of both traditional and dispersed generation with a broad, multidisciplinary perspective. As the first book to thoroughly focus on the topic of polygeneration, users will find the problem presented from different scientific and technical domains down to both macro and micro levels. Detailed analyses and state-of-the-art developments in specific fields are included, focusing on storage in conventional energy supply chains and demand-side renewable polygeneration systems, management advice and the necessary market mechanisms needed to support them. This reference is useful for academics and professionals in conventional and unconventional energy systems. Includes an outlined framework towards polygeneration and polystorage down to both micro and macro levels Contains fluid and continuous chapters that provide detailed analysis and a review of the state-of-the-art developments in specific fields Addresses the wider global view of research advancement and potential in the role of polygeneration and polystorage in the move toward sustainability

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