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Resource Recovery in Drinking Water Treatment Feb 03 2022 Resource Recovery in Drinking Water Treatment concentrates on

techniques and methods for water purification. The book develops a new approach—resource recovery—toward drinking water, including the role of methods (adsorption, membrane, ion - exchange, biosorption, coagulation, etc.) and nanocomposites (such as biochar, sludge-based composites, chitosan, polymer, magnetic particles, etc.) in water resource recovery. It provides an in-depth overview on emerging water treatment techniques and the resource recovery of materials during the treatment process. Finally, the book aims to introduce polluted waters as new and sustainable sources rather than seeing wastewaters only a source of hazardous organic and inorganic matters. This book is part of a three-volume set that stresses the importance of contaminated water remediation, including surface waters, municipal or industrial wastewaters, and waters as a new source of nutrients, minerals and energy. Presents novel approaches to recover materials from water during treatment Discusses fundamentals and principals of water treatment to figure out current status and need for new development Includes applications of various composites and particles in water treatment and water recovery

Numerical and Experimental Investigation of Membrane Distillation Flux and Energy Efficiency Aug 21 2023 While the field of desalination has matured for seawater desalination and similar applications, other markets such as the treatment of high salinity feed streams require novel technological innovations. This thesis considers membrane distillation (MD), one of the relatively less studied desalination technologies. The energy efficiency of MD in the sweeping gas (SGMD) configuration along with a multi-tray bubble column dehumidifier is analyzed and compared to other conventional configurations. The single stage SGMD systems studied have relatively low GOR (approximately 2-3) compared to other MD systems. The system mass flow rates and top and

bottom temperatures together define optimal operating points of the system. An experimental apparatus designed to analyze scaling and fouling in MD is described in detail along with a discussion of the practical challenges faced and their solutions. Experiments are conducted at various feed temperatures, flow rates and salinities, and a numerical model of heat and mass transport in MD is validated. MD can treat feed solutions at very high salinities (200 ppt) and still produce extremely pure permeate with salinity less than 0.1 ppt. The experimental apparatus is also used to study the effect of module inclination angle on Air Gap MD flux performance and these results compared with theoretical predictions to determine the optimal orientation of the AGMD apparatus.

Membrane Separations Technology Sep 17 2020 The field of membrane separation technology is presently in a state of rapid growth and innovation. Many different membrane separation processes have been developed during the past half century and new processes are constantly emerging from academic, industrial, and governmental laboratories. While new membrane separation processes are being conceived with remarkable frequency, existing processes are also being constantly improved in order to enhance their economic competitiveness. Significant improvements are currently being made in many aspects of membrane separation technology: in the development of new membrane materials with higher selectivity and/or permeability, in the fabrication methods for high-flux asymmetric or composite membranes, in membrane module construction and in process design. Membrane separation technology is presently being used in an impressive variety of applications and has generated businesses totalling over one billion U.S. dollars annually. The main objective of this book is to present the principles and applications of a variety of membrane separation processes from the unique perspectives of investigators who have made important contributions to their fields. Another objective is to provide the reader with an authoritative resource on various aspects of this rapidly growing technology. The text can be used by someone who wishes to learn about a general area of application as well as by the

knowledgeable person seeking more detailed information.

Text-book of Chemistry May 06 2022
Development of an Environmental Impact Assessment and Decision Support System for Seawater Desalination Plants Oct 19 2020
Seawater desalination is a coastal-based industry. The growing number of desalination plants worldwide and the increasing size of single facilities emphasises the need for greener desalination technologies and more sustainable desalination projects. Two complementing approaches are the development and implementation of best available technology (BAT) standards and best practice guidelines for environmental impact assessment (EIA) studies. While BAT is a technology-based approach, which favours state of the art technologies that reduce resource consumption and waste emissions, EIA aims at minimizing impacts at a site- and project-specific level through environmental monitoring, evaluation of impacts, and mitigation where necessary. This book contains a comprehensive evaluation and synthesis of the potential environmental impacts of desalination plants, with emphasis on the marine environment and aspects of energy use, followed by the development of strategies for impact mitigating. A concept for BAT for seawater desalination technologies is proposed, in combination with a methodological approach for the EIA of desalination projects. The scope of the EIA studies are outlined, including environmental monitoring, toxicity and hydrodynamic modelling studies, and the usefulness of multi-criteria analysis as a decision support tool for EIAs is explored and used to compare different intake and pretreatment options for seawater reverse osmosis plants.

Membrane Protein Crystallization Apr 17 2023 This volume of Current Topics in Membranes focuses on Membrane Protein Crystallization, beginning with a review of past successes and general trends, then further discussing challenges of membranes protein crystallization, cell free production of membrane proteins and novel lipids for membrane protein crystallization. This publication also includes tools to enhance membrane protein crystallization, technique advancements, and crystallization strategies used for photosystem I

and its complexes, establishing Membrane Protein Crystallization as a needed, practical reference for researchers.

Urban Mining for Waste Management and Resource Recovery Aug 09 2022 Scientific management strategies can help in exploring anthropogenic wastes (human-made materials) as potential resources through the urban mining concept and be a panacea for sustainable development. This book covers five broader aspects of waste management and resource recovery in urban mining including solid and liquid waste management and treatment. It explains sustainable approaches of urban mining for the effective management of solid and liquid wastes and facilitates their conversion into secondary resources. Overall, this book provides details of urban mining and its different applications including current waste management problems, practices, and challenges faced worldwide. Presents a holistic approach for urban mining considering various types of wastes Describes contemporary integrated approaches for waste management with specific case studies Provides technical, social, and environmental aspects of solid and liquid wastes Considers aspects of sustainability and a circular bio-economy Incorporates pertinent case studies on water and wastewater management This volume caters to researchers and graduate students in environmental engineering, solid waste management, wastewater treatment, and materials science. *Reverse Osmosis and Nanofiltration, (M46)* Jan 02 2022

Agricultural and Biological Chemistry Jun 07 2022

Process Intensification Jan 22 2021 Process Intensification: Engineering for Efficiency, Sustainability and Flexibility is the first book to provide a practical working guide to understanding process intensification (PI) and developing successful PI solutions and applications in chemical process, civil, environmental, energy, pharmaceutical, biological, and biochemical systems. Process intensification is a chemical and process design approach that leads to substantially smaller, cleaner, safer, and more energy efficient process technology. It improves process flexibility, product quality, speed to market and inherent

safety, with a reduced environmental footprint. This book represents a valuable resource for engineers working with leading-edge process technologies, and those involved research and development of chemical, process, environmental, pharmaceutical, and bioscience systems. No other reference covers both the technology and application of PI, addressing fundamentals, industry applications, and including a development and implementation guide Covers hot and high growth topics, including emission prevention, sustainable design, and pinch analysis World-class authors: Colin Ramshaw pioneered PI at ICI and is widely credited as the father of the technology Membrane Processes May 14 2020 The fundamental processes of mass transport in membranes are outlined in this book, which also develops the applications of these processes in industry. Local transport phenomena and the behaviour of individual elements, the technical unit and the module are all examined.

Membrane Technology and Applications Mar 04 2022 Table of Contents Preface Acknowledgments for the first edition Acknowledgments for the second edition 1 Overview of Membrane Science and Technology 1 2 Membrane Transport Theory 15 3 Membranes and Modules 89 4 Concentration Polarization 161 5 Reverse Osmosis 191 6 Ultrafiltration 237 7 Microfiltration 275 8 Gas Separation 301 9 Pervaporation 355 10 Ion Exchange Membrane Processes - Electrodialysis 393 11 Carrier Facilitated Transport 425 12 Medical Applications of Membranes 465 13 Other Membrane Processes 491 Appendix 523 Index 535.

Separation Process Principles Jun 26 2021 Separation Process Principles with Applications Using Process Simulator, 4th Edition is the most comprehensive and up-to-date treatment of the major separation operations in the chemical industry. The 4th edition focuses on using process simulators to design separation processes and prepares readers for professional practice. Completely rewritten to enhance clarity, this fourth edition provides engineers with a strong understanding of the field. With the help of an additional co-author, the text presents new information on bioseparations throughout the chapters. A new chapter on

mechanical separations covers settling, filtration and centrifugation including mechanical separations in biotechnology and cell lysis. Boxes help highlight fundamental equations. Numerous new examples and exercises are integrated throughout as well.

Integrated Membrane Systems Jan 14 2023 With new and forthcoming regulatory requirements regarding advanced water treatment, membrane processes have a broad range of applicability. This report covers three major pretreatments that were tested on pilot-plant scale in comparison to a conventional membrane system for anaerobic groundwater.

Proton Exchange Membrane Fuel Cells 6 Mar 24 2021 The symposium was devoted to all aspects of research development and engineering of proton exchange membrane fuel cells. Three subareas were covered: materials and electrode processes, fuel cell systems, and durability.

Chemical Abstracts Nov 19 2020

Therapeutic Monthly Aug 29 2021

Evaluation of Water Reclamation Systems and Analysis of Recovered Water for Human Consumption Dec 01 2021

Re-Engineering the Chemical Processing Plant Jul 16 2020 The first guide to compile current research and frontline developments in the science of process intensification (PI), *Re-Engineering the Chemical Processing Plant* illustrates the design, integration, and application of PI principles and structures for the development and optimization of chemical and industrial plants. This volume updates professionals on emerging PI equipment and methodologies to promote technological advances and operational efficacy in chemical, biochemical, and engineering environments and presents clear examples illustrating the implementation and application of specific process-intensifying equipment and methods in various commercial arenas.

Oil and Gas Production Handbook: An Introduction to Oil and Gas Production May 26 2021

Desalination and Water Treatment Jul 08 2022 The need for fresh water is increasing with the rapid growth of the world's population. In countries and regions with available water resources, it is necessary to ensure the health and safety of the water supply. However, in

countries and regions with limited freshwater resources, priority is given to water supply plans and projects, among which the desalination strategy stands out. In the desalination process, membrane and thermal processes are used to obtain fresh water from salty water that is in abundant amounts in the sea. This book will outline valuable scientific contributions to the new desalination and water treatment technologies to obtain high quality water with low negative environmental impacts and cost. The editors would like to record their sincere thanks to the authors for their contributions.

Shale Gas: Ecology, Politics, Economy Sep 29 2021 This book highlights various aspects of shale gas production and discusses the associated problems, which have greatly influenced the current situation on the global gas market. It focuses on issues such as production technologies, environmental protection, and the impacts of shale gas production on human beings. Further, it investigates the role of shale gas in the development and implementation of foreign policy of many nations that welcomed the possibility to produce this hydrocarbon in their own countries. Taking into consideration the information published by world energy research centers, the prospects of shale gas production in different regions of the world are examined in detail. Given its coverage and scope, the book will greatly benefit specialists in the areas of hydrocarbon production, international relations and foreign policy, world economics and technologies, ecology and environmental protection.

A Multidisciplinary Introduction to Desalination Mar 16 2023 Although more than 70% of the globe is covered with water, only a small portion is suitable for direct human use, making the scarcity of freshwater one of our planet's most serious challenges. In this context "desalination", defined as "the removal of salt from water", is one of the possible solutions for overcoming our planet's municipal and industrial thirst. By drawing upon the authoritative expertise of a remarkable team of international authors, this book aims to provide an encompassing and "multidisciplinary" introduction to various aspects of desalination. The forte of this publication is that it does not

overtly focus on a particular sub-topic of desalination, but rather addresses the topic as a whole. In other words, the unique assortment of reader-friendly chapters is designed to strike a delicate balance between the technical and non-technical. The book is divided into five general sections: The first section presents an overview of water scarcity, followed by a review of integrated water management and the alternatives to desalination. The fundamentals of desalination are provided, including simple water chemistry; The second section covers the conventional technologies of today, including thermal and membrane desalination processes. The topics of pre- and post- treatment are given due credit, as no desalination plant can operate without them; The third section reviews the history of how desalination technologies originated, including a review of today's R&D activities and cutting edge research. The processes and engineering applied for membrane manufacturing are also presented; Section four is concerned with energy and environmental issues, including the application of renewable and nuclear energy, minimization of energy usage and the water-energy-nexus, brine management, and environmental impacts; Finally, section five covers the social and commercial issues, ranging from rural desalination, to the politics of desalination. Desalination costs and feasibility are presented, as well as issues in business development and the future market prospects. Effectively, *A Multidisciplinary Introduction to Desalination* aims to be a holistic go-to-compendium for anyone seeking a balanced understanding of the various facets of desalination

Water Scarcity and Ways to Reduce the Impact

Apr 12 2020 Because water access, distribution and quality are the most urgent challenges for societies across the world, this book focuses on the current and future demands and challenges in the areas of water scarcity we may face and possible solutions in terms of technology and management including infrastructure changes that are needed for the future smart cities. Readers of this book shall gain an increased understanding of water supply and its demands and shall learn some of the research trends to overcome global water

scarcity and urban growth by creating smart cities.

Chemical Engineering Design Jul 28 2021

Chemical Engineering Design, Second Edition, deals with the application of chemical engineering principles to the design of chemical processes and equipment. Revised throughout, this edition has been specifically developed for the U.S. market. It provides the latest US codes and standards, including API, ASME and ISA design codes and ANSI standards. It contains new discussions of conceptual plant design, flowsheet development, and revamp design; extended coverage of capital cost estimation, process costing, and economics; and new chapters on equipment selection, reactor design, and solids handling processes. A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data, and Excel spreadsheet calculations, plus over 150 Patent References for downloading from the companion website. Extensive instructor resources, including 1170 lecture slides and a fully worked solutions manual are available to adopting instructors. This text is designed for chemical and biochemical engineering students (senior undergraduate year, plus appropriate for capstone design courses where taken, plus graduates) and lecturers/tutors, and professionals in industry (chemical process, biochemical, pharmaceutical, petrochemical sectors). New to this edition: Revised organization into Part I: Process Design, and Part II: Plant Design. The broad themes of Part I are flowsheet development, economic analysis, safety and environmental impact and optimization. Part II contains chapters on equipment design and selection that can be used as supplements to a lecture course or as essential references for students or practicing engineers working on design projects. New discussion of conceptual plant design, flowsheet development and revamp design Significantly increased coverage of capital cost estimation, process costing and economics New chapters on equipment selection, reactor design and solids handling processes New sections on fermentation, adsorption, membrane separations, ion exchange and chromatography Increased coverage of batch processing, food,

pharmaceutical and biological processes All equipment chapters in Part II revised and updated with current information Updated throughout for latest US codes and standards, including API, ASME and ISA design codes and ANSI standards Additional worked examples and homework problems The most complete and up to date coverage of equipment selection 108 realistic commercial design projects from diverse industries A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data and Excel spreadsheet calculations plus over 150 Patent References, for downloading from the companion website Extensive instructor resources: 1170 lecture slides plus fully worked solutions manual available to adopting instructors

Emerging Technologies for Sustainable Desalination Handbook Jun 19 2023 Emerging Technologies for Sustainable Desalination Handbook provides professionals and researchers with the latest treatment activities in the advancement of desalination technology. The book enables municipalities and private companies to custom-design sustainable desalination plants that will minimize discharge, energy costs and environmental footprint. Individual case studies are included to illustrate the benefits and drawback of each technique. Sections discuss a multitude of recently developed, advanced processes, along with notable advances made in existing technologies. These processes include adsorption, forward osmosis, humidification and dehumidification, membrane distillation, pervaporation and spray type thermal processes. In addition, theoretical membrane materials, such as nanocomposite and carbon nanotube membranes are also explored. Other chapters cover the desalination of shale gas, produced water, forward osmosis for agriculture, desalination for crop irrigation, and seawater for sustainable agriculture. International in its coverage, the chapters of this handbook are contributed by leading authors and researchers in all relevant fields. Expertly explains recent advances in sustainable desalination technology, including nanocomposite membranes, carbon nanotube membranes, forward reverse osmosis and desalination by pervaporation Provides state-of-

the-art techniques for minimizing system discharge, energy cost and environmental footprint Includes individual case studies to illustrate the benefits and drawbacks of each technique Discusses techniques for the custom-design of sustainable desalination plants for municipalities, private companies and industrial operations

Selected Water Resources Abstracts Sep 10 2022

Fundamentals of Salt Water Desalination Dec 21 2020 Industrial desalination of sea and brackish water is becoming an essential part in providing sustainable sources of fresh water for a larger number of communities around the world. Desalination is a main source of fresh water in the Gulf countries, a number of the Caribbean and Mediterranean Islands, and several municipalities in a large number of countries. As the industry expands there is a pressing need to have a clear and well-written textbook that focuses on desalination fundamentals and other industrial aspects. This book focuses on the processes widely used in industry, which include multistage flash desalination and reverse osmosis. Also, other desalination processes with attractive features and high potential are featured. It includes a large number of solved examples, which are explained in simple and careful matter that allow the reader to follow and understand the development. The data used in the development of the examples and case studies are extracted from existing desalination plants. This title also includes comparisons of model predictions against results reported in literature as well as available experimental and industrial data. Several industries include similar unit operation processes, i.e., evaporators, condensers, flashing units, membrane separation, and chemical treatment. Examples of such industries include wastewater treatment, food, petroleum, petrochemical, power generation, and pulp and paper. Process fundamentals and design procedures of such unit processes follow the same procedures given in this textbook. [PISA Take the Test Sample Questions from OECD's PISA Assessments](#) Aug 17 2020 This book presents all the publicly available questions from the PISA surveys. Some of these questions were used in the PISA 2000, 2003 and 2006

surveys and others were used in developing and trying out the assessment.

Marine Environmental Impact of Seawater Desalination Apr 05 2022 Marine Environmental Impact of Seawater Desalination: Science, Management and Policy combines existing studies with the personal research of the author into a unified work describing the effects of seawater desalination on marine environments. In particular, the book identifies knowledge gaps and recommends future research paths that may be taken. The book covers the current and emerging desalination processes, how environmental factors impact desalination operations and the historical and potential impacts of seawater desalination on the marine environment. This book is ideal as a reference for engineers and developers working towards mitigation and prevention of environmental impacts. In addition, scientists and researchers in environmental studies programs, as well as regulators and decision makers will find the data presented in the book to be useful as a guide for building and operating desalination plants. Provides a multidisciplinary approach to help readers understand the environmental impact of seawater desalination on the marine environment Presents environmental effects based on real data, helping the reader improve processes and mitigate effects Includes possible future effects, thus directing the reader towards important research issues

Handbook of Water Analysis Dec 13 2022 This work details water sampling and preservation methods by enumerating the different ways to measure physical, chemical, organoleptical, and radiological characteristics. It provides step-by-step descriptions of separation, residue determination, and cleanup techniques for a variety of fresh- and salt-waters. It also discusses information regarding the analysis and detection of bacteria and algae.

Thermodynamics and the Destruction of Resources Jun 14 2020 This book is a unique, multidisciplinary effort to apply rigorous thermodynamics fundamentals, a disciplined scholarly approach, to problems of sustainability, energy, and resource uses. Applying thermodynamic thinking to problems of sustainable behavior is a significant advantage in bringing order to ill-defined questions with a

great variety of proposed solutions, some of which are more destructive than the original problem. The articles are pitched at a level accessible to advanced undergraduates and graduate students in courses on sustainability, sustainable engineering, industrial ecology, sustainable manufacturing, and green engineering. The timeliness of the topic, and the urgent need for solutions make this book attractive to general readers and specialist researchers as well. Top international figures from many disciplines, including engineers, ecologists, economists, physicists, chemists, policy experts and industrial ecologists among others make up the impressive list of contributors.

Water Treatment Membrane Processes Oct 11 2022 With global demand for water in the 20th century expected to increase ten-fold, this work focuses on the membrane filtration issues for drinking water.

Industrial Membrane Separation Technology Nov 12 2022 Membrane science and technology is an expanding field and has become a prominent part of many activities within the process industries. It is relatively easy to identify the success stories of membranes such as desalination and microfiltration and to refer to others as developing areas. This, however, does not do justice to the wide field of separations in which membranes are used. No other 'single' process offers the same potential and versatility as that of membranes. The word separation classically conjures up a model of removing one component or species from a second component, for example a mass transfer process such as distillation. In the field of synthetic membranes, the terminology 'separation' is used in a wider context. A range of separations of the chemical/mass transfer type have developed around the use of membranes including distillation, extraction, absorption, adsorption and stripping, as well as separations of the physical type such as filtration. Synthetic membranes are an integral part of devices for analysis, energy generation and reactors (cells) in the electrochemical industry.

Thermodynamic and Thermophysical Properties of Saline Water Oct 31 2021 This book accommodates the existing correlations, data,

and methods for thermodynamic and thermophysical properties of saline water, including multiple components at a wide range of salinity (reaching around 200 g/kg), temperature, and pressure. The correlations of each property are plotted against existing experimental data to judge the comparative accuracy of each within a given specific range of salinity, temperature, and pressure. An assessment to recommend some correlations is also conducted. New correlations for some properties are also proposed. This book helps to provide the saline water properties as needed for engineers, designers, and research for different areas, including desalination and water treatment. All the analytical analysis, thermodynamic analysis, and design models of the desalination technologies depend on saline water properties. As scientists and researchers working on different desalination technologies, the authors found it difficult to find all saline water properties in one source, including multicomponent and binary salty solutions, under different conditions (salinity, temperature, and pressure). Therefore, the authors introduce this book to fill the gap in the open literature. This book compiles the thermodynamic and thermophysical properties of saline water, involving thermodynamic approaches, multicomponent models, and simple correlations and data, comparison between the correlations of properties in figures, recommendation of the most accurate correlations and methods, and the used codes to estimate these correlations and methods. It is expected that this book to be a principal source for all interests in desalination and water treatment subjects.

Diffusional Mass Transfer Feb 20 2021

Desalination: Apr 24 2021 There has been an exponential increase in desalination capacity both globally and nationally since 1960, fueled in part by growing concern for local water scarcity and made possible to a great extent by a major federal investment for desalination research and development. Traditional sources of supply are increasingly expensive, unavailable, or controversial, but desalination technology offers the potential to substantially reduce water scarcity by converting the almost inexhaustible supply of seawater and the apparently vast quantities of brackish groundwater into new

sources of freshwater. Desalination assesses the state of the art in relevant desalination technologies, and factors such as cost and implementation challenges. It also describes reasonable long-term goals for advancing desalination technology, posits recommendations for action and research, estimates the funding necessary to support the proposed research agenda, and identifies appropriate roles for governmental and nongovernmental entities.

MXenes and their Composites Jul 20 2023
MXenes and their Composites: Synthesis, Properties and Potential Applications presents a state of the art overview of the recent developments on the synthesis, functionalization, properties and emerging applications of two-dimensional (2D) MXenes and their composites. The book systematically describes the state-of-the-art knowledge and fundamentals of MXene synthesis, structure, surface chemistry and functionalization. The book also discusses the unique electronic, optical, mechanical and topological properties of MXenes. Besides, this book covers the various emerging applications of MXenes and their composites across different fields such as energy storage and conversion, gas sensing and biosensing, rechargeable lithium and sodium-ion batteries, lithium-sulphur and multivalent batteries, electromagnetic interference shielding, hybrid capacitors and supercapacitors, hydrogen storage, catalysis and photoelectrocatalysis, gas separation and water desalination, environmental remediation and medical and biomedical applications. All these applications have been efficiently discussed in the specific chapters and in each case, the processing of MXene composites has also been discussed. This book will be an excellent reference for scientists and engineers across various disciplines and industries working in the field of highly promising 2D MXenes and their composites. The book will also act as a guide for academic researchers, material scientists, and advanced students in investigating the new applications of 2D MXenes based materials. Covers fundamentals of technologically important MAX phases, MXene derivatives, MXene synthesis methods, intercalation and delamination strategies, surface functionalization, fundamental characteristics

and properties Demonstrates major application areas of MXenes, including catalytic, energy storage and energy generation, flexible electronics, EMI shielding, sensors and biosensors, medical and biomedical, gas separation and water desalination Presents a detailed discussion on the processing and performance of various MXenes towards different applications

Membrane Distillation Feb 15 2023 Modern membrane engineering is critical to the development of process-intensification strategies and to the stimulation of industrial growth. Membrane Distillation (MD) is a broad reference that covers specific information on membranes available and methods for MD membrane preparation and characterization. The book offers an introduction to the terminology and fundamental concepts as well as a historical review of MD development. Commercial membranes used in MD as well as laboratory-made membranes, including emerging membranes, are described in detail and illustrated by a number of clear and instructive schematic drawings and images. A

comprehensive review on the development of MD membranes, MD modules, MD membrane characterization, MD configurations, applications in different areas and theoretical models Introduction to the terminology and fundamental concepts associated with MD as well as an historical review of MD development Description of commercial membranes used in MD as well as laboratory-made membranes, including emerging membranes

Advances in Membrane Technologies May 18 2023 Membrane technologies are currently the most effective and sustainable methods utilized in diversified water filtration, wastewater treatment, as well as industrial and sustainable energy applications. This book covers essential subsections of membrane separation and bioseparation processes from the perspectives of technical innovation, novelty, and sustainability. The book offers a comprehensive overview of the latest improvements and concerns with respect to membrane fouling remediation techniques, issues of biocompatibility for biomedical applications, and various subareas of membrane separation processes, which will be an efficient resource for engineers.