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Ion Exchange Membranes Basic Equations of the Mass Transport Through a Membrane Layer Molecular Dynamics in Biological Membranes Metal-organic Framework Membranes For Molecular Gas Separations Membrane Biophysics: As Viewed from Experimental Bilayer Lipid Membranes Polymeric Gas Separation Membranes Basic Equations of Mass Transport Through a Membrane Layer Two-Dimensional-Materials-Based Membranes Microporous Materials for Separation Membranes Microfiltration and Ultrafiltration Membranes for Drinking Water (M53) Membrane Processes Biological Membranes in Toxicology Molecular Biology of Membranes Vectorial Transport of Proteins into and across Membranes Membrane Contactor Technology Electrochemical Membrane Technology Membrane Technologies and Applications Dynamics of Engineered Artificial Membranes and Biosensors Microfiltration and Ultrafiltration Membranes for Drinking Water Handbook of Lipid Membranes Nanofiber Membranes for Medical, Environmental, and Energy Applications Application of Membranes in the Petroleum Industry Nanostructured Polymer Membranes, Volume 1 60 Years of the Loeb-Sourirajan Membrane New Methods and Sensors for Membrane and Cell Volume Research Membrane Technology for Water and Wastewater Treatment, Energy and Environment Application of Nanotechnology in Membranes for Water Treatment Handbook of Membrane Separations Advances in Membrane Technologies for Water Treatment Issues in Life Sciences: Muscle, Membrane, and General Microbiology: 2011 Edition Sustainable Membrane Technology for Energy, Water, and Environment Membranes Technology ebook Collection Membrane Distillation Engineering Aspects of Membrane Separation and Application in Food Processing Membrane Physiology Membrane Modification Natural Organics Removal Using Membranes Biological Membranes Membrane Processing for Dairy Ingredient Separation Current Trends and Future Developments on (Bio-) Membranes

Ion Exchange Membranes 2007-08-13 fundamental study and industrial application of ion exchange membranes started over half a century ago through the ongoing research and development the ion exchange membrane technology is now applied to many fields and contributes to the improvement of our standard of living ion exchange membranes states the ion exchange membrane technology from the standpoint of fundamentals and applications discussing not only various phenomena exhibited by the membranes but also their applications in many fields with economical evaluations this volume looks at the latest developments in ion exchange membrane technology provides a full and wide explanation of ion exchange membranes easy to understand layout including many figures and tables
Basic Equations of the Mass Transport Through a Membrane Layer 2012 with a detailed analysis of the mass transport through membrane layers and its effect on different separation processes this book provides a comprehensive look at the theoretical and practical aspects of membrane transport properties and functions basic equations for every membrane are provided to predict the mass transfer rate the concentration distribution the convective velocity the separation efficiency and the effect of chemical or biochemical reaction taking into account the heterogeneity of the membrane layer to help better understand the mechanisms of the separation processes the reader will be able to describe membrane separation processes and the membrane reactors as well as choose the most suitable membrane structure for separation and for membrane reactor containing detailed discussion of the latest results in transport processes and separation processes this book is essential for chemistry students and practitioners of chemical engineering and process engineering detailed survey of the theoretical and practical aspects of every membrane process with specific equations practical examples discussed in detail with clear steps will assist in planning and preparation of more efficient membrane structure separation
Molecular Dynamics in Biological Membranes 2012-12-06 this unique compendium describes research progress on metal organic framework mof membranes for different relevant industrial gas separations specifically the book focuses mainly on gas separations which are important in flue gas treatment natural gas purification hydrogen purification and nuclear reprocessing the advantages of using mofs in mixed matrix membranes are discussed some of the pressing challenges in the field and strategies to potentially overcome them are also distinctly outlined this volume is a useful reference materials for professionals academics researchers and postgraduate students in chemical engineering and materials engineering
Metal-organic Framework Membranes For Molecular Gas Separations 2020-07-30 this book summarizes the current status of research on bilayer lipid membranes planar lipid bilayers and spherical liposomes in addition to describing the properties of lipid bilayers and examining biomembrane phenomena the book has two other objectives the first is to present practical methods for the formation and study of lipid bilayers with either aqueous or metal lipid bilayer interfaces the second aim is to treat planar lipid bilayers as a new type of interfacial adsorption phenomena the first nine chapters cover properties of biomembranes basic principles of membrane biophysics transport electrochemistry physiology bioenergetics and photobiology chapter 10 presents the following topics lipid bilayers in medicine supported lipid bilayers as sensors a short discussion of liposomes and solar energy transduction via semiconductor septum photovoltaic cells based on natural photosynthesis
Membrane Biophysics: As Viewed from Experimental Bilayer Lipid Membranes 2000-01-11 polymeric gas separation membranes is an outstanding reference devoted to discussing the separation of gases by membranes an international team of contributors examines the latest findings of membrane science and practical applications and explores the complete spectrum of relevant topics from fundamentals of gas sorption and diffusion in polymers to vapor separation from air they also compare membrane processes with other separation technologies this essential book will be valuable to all practitioners and students in membrane science and technology
Polymeric Gas Separation Membranes 2018-05-04 basic equations of mass transport through a membrane layer second edition has been fully updated to deliver the latest research in the field this volume covers the essentials of compound separation product removal concentration and production in the chemical biochemical pharmaceutical and food industries it outlines the various membrane processes and their applications offering a detailed mathematical description of mass transport and

defining basic mass transport and concentration distribution expressions additionally this book discusses the process parameters and application of the expressions developed for a variety of industrial applications comprehensive explanations of convective diffusive mass transport are provided both with and without polarization layers that help predict and process performance and facilitate improvements to operation conditions and efficiency basic equations of mass transport through a membrane layer is an ideal resource for engineers and technologists in the chemical biochemical and pharmaceutical industries as well as researchers professors and students in these areas at both an undergraduate and graduate level cites and analyzes mass transport equations developed for different membrane processes examines the effect of biochemical chemical reactions in the presence of convective and diffusive flows in plane and cylindrical spaces defines the mass transfer rate for first and zero order reactions and analytical approaches are given for other order reactions in closed mathematical forms analyzes the simultaneous convective and diffusive transports with same or different directions

Basic Equations of Mass Transport Through a Membrane Layer 2018-11-05 two dimensional materials based membranes an authoritative and up to date discussion of two dimensional materials and membranes in two dimensional materials based membranes preparation characterization and applications a team of distinguished chemical engineers delivers a comprehensive exploration of the latest advances in design principles synthesis approaches and applications of two dimensional 2d materials like graphene metal organic frameworks mofs 2d layered double hydroxides and mxene and highlights the significance and development of these membranes in the book the authors discuss the use of membranes to achieve high efficiency separation and to address the challenges posed in the field the book also discusses potential challenges and benefits in the future development of advanced 2d nanostructures as well as their impending implementation in applications in the fields of energy sustainability catalysis electronics and biotechnology readers will also find a thorough introduction to fabrication methods for 2d materials based membranes including the synthesis of nanosheets membrane structures and fabrication methods descriptions of three types of 2d materials based membranes single layer membranes laminar membranes and mixed matrix membranes comprehensive discussions of 2d materials based membranes for water and ions separation solvent water separation and gas separation explorations of transport mechanism of 2d materials based membranes for molecular separations perfect for membrane scientists inorganic chemists and materials scientists two dimensional materials based membranes will also earn a place in the libraries of chemical and process engineers in industrial environments

Two-Dimensional-Materials-Based Membranes 2022-08-05 a guide to membrane separation based on a variety of porous materials with promising separation applications microporous materials for separation membranes offers an in depth guide that explores microporous materials potential for membrane applications the authors two experts on the topic examine a wide range of porous materials that have application potential including microporous silica porous carbons zeolites metal organic frameworks mofs and porous organic frameworks pofs comprehensive in scope the book covers a broad range of topics on membrane separations such as hydrogen recovery carbon dioxide capture air purification hydrocarbon separation pervaporation and water treatment in addition this up to date resource explores the most recent materials for preparing microporous membranes and explores the most promising applications for industrial use this important book examines the use of microporous materials as membranes to perform with different gases and liquids offers an overview of the basic knowledge of membrane separation and an intense examination of separations describes the state of the art of membrane separation with porous materials highlights the most promising applications of industrial interest written for scientists working in the fields of membranes gas and liquid microporous materials for separation membranes offers a valuable guide to the potential of microporous materials for membrane applications

Microporous Materials for Separation Membranes 2019-07-09 separation processes are challenging steps in any process industry for isolation of products and recycling of reactants membrane technology has shown immense potential in separation of liquid and gaseous mixtures effluent treatment drinking water purification and solvent

recovery it has found endless popularity and wide acceptance for its small footprint higher selectivity scalability energy saving capability and inherent ease of integration into other unit operations there are many situations where the target component cannot be separated by distillation liquid extraction and evaporation the different membrane processes such as pervaporation vapor permeation and membrane distillation could be used for solving such industrial bottlenecks this book covers the entire array of fundamental aspects membrane synthesis and applications in the chemical process industries cpi it also includes various applications of pervaporation vapor permeation and membrane distillation in industrially and socially relevant problems including separation of azeotropic mixtures close boiling compounds organic organic mixtures effluent treatment along with brackish and seawater desalination and many others these processes can also be applied for extraction of small quantities of value added compounds such as flavors and fragrances and selective removal of hazardous impurities viz volatile organic compounds vocs such as vinyl chloride benzene ethyl benzene and toluene from industrial effluents including case studies this is a must have for any process or chemical engineer working in the industry today also valuable as a learning tool students and professors in chemical engineering chemistry and process engineering will benefit greatly from the groundbreaking new processes and technologies described in the volume

Microfiltration and Ultrafiltration Membranes for Drinking Water (M53) 2011-01-12 using this concise yet complete introduction to all aspects of biological membranes and their responses to toxicants the reader will understand the role of cell membranes in controlling uptake distribution extrusion and excretion of toxic xenobiotics the book also covers the historical background and critically evaluates some of the experimenta

Membrane Processes 2018-11-26 this well organized user friendly and profusely illustrated work fills the need for an up to date textbook on the structure and function of biological membranes in addition to the traditional topics covered in membrane biology courses it discusses recent findings provided by cdna cloning and x ray diffraction to furnish the advanced undergraduate and graduate student with the most current practical classroom resource available

Biological Membranes in Toxicology 1998-12-17 this is the third volume in this series covering protein translocation within and between cells volumes 31 and 32 vesicular transport parts a and b treated techniques for eukaryotic cells available as of 1989 vectorial transport of proteins into and across membranes brings together new methods and new topics as of 1991 highlights include use of anti idiotype antibodies gene fusions transcription crosslinking pulse labeling and reconstitution describes contemporary approaches for studying protein transport protein topology and organelle biogenesis covers methods from pre eminent laboratories including in vitro and in vivo investigations biochemical and immunological techniques prokaryote chloroplast mitochondria peroxisome and rough endoplasmic reticulum membranes

Molecular Biology of Membranes 1993-05-31 an eye opening exploration of membrane contactors from a group of industry leaders in membrane contactor technology water treatment food processing gas separation and carbon capture an expert team of researchers delivers an up to date and insightful explanation of membrane contactor technology including transport phenomena design aspects and diverse process applications the book also includes explorations of membrane synthesis process and module design as well as rarely discussed process modeling and simulation techniques the authors discuss the technical and economic aspects of this increasingly important technology and examine the geometry flow energy and mass transport and design aspects of membrane contactor modules they also cover a wide range of application opportunities for this technology from the materials sciences to process engineering membrane contactor technology also includes a thorough introduction to the membrane contactor extraction process including dispersion free membrane extraction processes and supported liquid membrane processes comprehensive explorations of membrane transport theory including discussions of diffusional mass and heat transfer modeling as well as numerical modeling in depth examinations of module configuration and geometry including design and flow configuration practical discussions of modes or operation including membrane distillation osmotic evaporation and forward osmosis perfect for process engineers biotechnologists water chemists and membrane scientists membrane contactor technology also

belongs in the libraries of chemical engineers polymer chemists and chemists working in the environmental industry

Vectorial Transport of Proteins into and across Membranes 1991-10-11 electrochemical membrane technology will have a strong impact on electrochemical and membrane separation research in the future and will contribute significantly to academic training and the well being of human society this book will include a comprehensive discussion of swot analysis of each electrochemical membrane technology and the discussion of energy production from electrochemical membrane technologies in a separate chapter this will be based theoretical and experimental studies on electrochemical membrane technologies and applications written for chemical and environmental engineers professors and other university teachers research scientists graduate students water treatment managers research institutions and research and development departments of industries involved in sustainable water treatment and coproduction of valuable products from water treatment technologies provides comparative analysis of energy production from electrochemical membrane technologies and a comprehensive analysis of the recent advances in these technologies discusses the strengths weaknesses opportunities and threats challenges swot of each electrochemical membrane technology addresses the importance energy co production

Membrane Contactor Technology 2022-04-18 membrane technologies play an increasingly important role in unit operations for resource recovery pollution prevention and energy production as well as environmental monitoring and quality control they are also key component technologies of fuel cells and bioseparation applications membrane technologies and applications provides essential data and background information on various dimensions of membrane technologies with a major focus on their practical application membranes of inorganic materials offer cost effective solutions for simple to complex separation problems this book is designed for anyone interested in water and wastewater treatment membrane suppliers as well as students and academics studying the field

Electrochemical Membrane Technology 2024-01-23 a state of the art guide to building synthetic membranes for biological devices covering their construction measurement and modelling

Membrane Technologies and Applications 2011-12-19 this brand new manual provides thorough coverage of water membrane science concepts and theory chapters discuss membrane applications testing of membrane systems design concepts and operations costs residuals plus the various manufactures the final chapter covers future trends in low pressure membranes followed by extensive tables and figures

Dynamics of Engineered Artificial Membranes and Biosensors 2018-05-03 this handbook provides a unique overview of lipid membrane fundamentals and applications the fascinating world of lipids that harbor and govern so many biological functionalities are discussed within the context of membrane structures interactions and shape evolution beyond the fundamentals in lipid science this handbook focuses on how scientists are building bioinspired biomimetic systems for applications in medicine cosmetics and nanotechnology key features includes experimental and theoretical overviews on the role of lipids with or without associated biomolecules as structural components imparting distinct membrane shapes and intermembrane interactions covers the mechanisms of lipid membrane curvature by peptide and protein binding and the roles of signalling lipids and the cytoskeleton in plasma membrane shape evolution covers advanced x ray and force measurement techniques discusses applications in biomedicine cosmetics and nanotechnology including lipid vectors in nucleic acid drug delivery in dermal applications and lipid based sensors and artificial biointerfaces covers artificial membranes from block copolymers synthetic copolypeptides and recombinant proteins includes an exciting section that explores the role of lipids in the origin of life in hydrothermal conditions this book is a highly informative companion for professionals in biophysics biochemistry physical chemistry and material and pharmaceutical sciences and bioengineering

Microfiltration and Ultrafiltration Membranes for Drinking Water 2005 this book focuses on the nanofiber membrane s fabrication characterization and performance for medical environment and energy applications topics include polymer inorganic and composite form nanofiber membrane materials top research teams

from varied disciplines and continents outline applied nanofiber membrane fabrication techniques and characterizations promising nanofiber membranes for improving and enhancing technologies used in drug delivery wound healing tissue engineering water and wastewater treatment and purification gas separation and purification air purification and fuel cells are discussed along with the likely path forward for commercial usage key features shares the most recent discovery solutions from experts all over the globe for the numerous problems in medical environmental and energy applications provides a holistic cycle of nanofiber membrane development which comprehensively discusses the membrane preparation characterizations performance and the way forward for a specific process and application explains the mechanism of separation and purification focuses on the nanofiber membrane s fabrication characterizations and performance in various scenarios and commercial applications

Handbook of Lipid Membranes 2021-09-14 this book focuses on the advantageous features of membrane technology in petroleum industries with an emphasis on membrane materials and the application of membranes in the separation of olefin paraffin oil water aliphatic aromatics heavy metals etc along with other applications like waste management sulphur emission enhanced oil recovery and so forth it also discusses the design and development of membranes from novel materials the challenges of new materials for membrane applications membrane based processes and the application of novel membrane based processes in the petroleum industry features addresses the fundamental applications of membranes in petroleum industrial separation processes highlights the role of membrane technology in waste management in petroleum industries includes novel engineered membrane materials discusses methods of extracting valuable substances from produced water and membrane fouling control emphasises solving industrial problems pertinent to membrane usage this book is aimed at researchers and graduate students in chemical and petroleum engineering and membrane technology

Nanofiber Membranes for Medical, Environmental, and Energy Applications 2019-07-30 this book is intended to serve as a one stop reference resource for important research accomplishments in the area of nanostructured polymer membranes and their processing and characterizations it will be a very valuable reference source for university and college faculties professionals post doctoral research fellows senior graduate students and researchers from r d laboratories working in the area of polymer nanobased membranes the various chapters are contributed by prominent researchers from industry academia and government private research laboratories across the globe and comprise an up to date record on the major findings and observations in the field

Application of Membranes in the Petroleum Industry 2024-07-04 60 years of the loeb sourirajan membrane principles new materials modelling characterization and applications bring forth theoretical advances novel characterization techniques materials development advanced treatment processes and emerging applications of membrane based technologies the trigger for writing this book is the 2020 60th anniversary of the first asymmetric polymeric membrane invented by dr sidney loeb and dr srinivasa sourirajan university of california los angeles usa on the breakthrough discovery of the semipermeable membrane for seawater desalination the book places emphasis on the advances of organic and inorganic membranes in different fields covering not only the primary application of membranes for water and wastewater treatment but also other applications dealing with energy conversion and storage organic solvent purification gas separation and biomedical processes provides a comprehensive overview on membrane technologies from the fundamental knowledge of fabrication principle and separation mechanisms to a wide range of applications including new emerging processes covers the use of new advanced materials both organic and inorganic novel membrane fabrication techniques and cutting edge characterization methods for the development of advanced membranes includes advances in computational modeling and simulation of membrane processes

Nanostructured Polymer Membranes, Volume 1 2016-11-11 new methods and sensors for membrane and cell volume research volume 88 provides an overview of novel experimental approaches to study both the cell membrane and the under membrane space the cytosol which have lately began drawing renewed attention the book s overall emphasis is on fluorescent and fret based sensors however other optical such as variants of transmission microscopy and non optical methods neutron scattering and mass spectrometry also have dedicated chapters this volume provides a rare review of experimental approaches to study intracellular phase transitions as well as

anion channels membrane tension and dynamics and other topics of intense current interest describes novel fret based membrane sensors reviews selected non optical approaches to membrane structure and dynamics describes traditional and modern aspects of cell volume research such as phase transitions and macromolecular crowding

60 Years of the Loeb-Sourirajan Membrane 2022-04-02 realizing that water energy and food are the three pillars to sustain the growth of human population in the future this book deals with all the above aspects with particular emphasis on water and energy in particular the book addresses applications of membrane science and technology for water and wastewater treatment energy and environment th

New Methods and Sensors for Membrane and Cell Volume Research 2021-12-01 the book focuses on application of nanotechnology in membranes for water treatment but not only provides a series of innovative solutions for water reclamation through advanced membrane technology but also serves as a medium to promote international cooperation and networking for the development of advanced membrane technology for universal well being and to achieve the common goal of supplying economically environmentally and societally sustainable freshwater and better sanitation systems this book is unique because the chapters were authored by established researchers all around the globe based on their recent research findings in addition this book provides a holistic coverage of membrane development for water treatment from the membrane preparation and characterizations to the performance for specific processes and applications since that water scarcity has become a global risk and one of the most serious challenges for the scientific community in this century the publication of this book is therefore significant as it will serve as a medium for a good reference of an alternative solution in water reclamation this book will provide the readers with a thorough understanding of the different available approaches for manufacturing membranes both with innovative polymeric systems and inorganic nano materials which could give enhanced functionalities catalytic and antimicrobial activities to improve the performance of the existing membranes it will be useful for leading decision and policy makers water sector representatives and administrators policy makers from the governments business leaders business houses in water treatment and engineers scientists from both industrialized and developing countries as well

Membrane Technology for Water and Wastewater Treatment, Energy and Environment 2016-03-16 the handbook of membrane separations chemical pharmaceutical and biotechnological applications provides detailed information on membrane separation technologies as they have evolved over the past decades to provide a basic understanding of membrane technology this book documents the developments dealing with these technologies it explores chemical pharmaceutical food processing and biotechnological applications of membrane processes ranging from selective separation to solvent and material recovery this text also presents in depth knowledge of membrane separation mechanisms transport models membrane permeability computations membrane types and modules as well as membrane reactors

Application of Nanotechnology in Membranes for Water Treatment 2017-07-14 advances in membrane technologies for water treatment materials processes and applications provides a detailed overview of advanced water treatment methods involving membranes which are increasingly seen as effective replacements for a range of conventional water treatment methods the text begins with reviews of novel membrane materials and advances in membrane operations then examines the processes involved with improving membrane performance final chapters cover the application of membrane technologies for use in water treatment with detailed discussions on municipal wastewater and reuse in the textile and paper industries provides a detailed overview of advanced water treatment methods involving membranes coverage includes advancements in membrane materials improvement in membrane performance and their applications in water treatment discusses the use of membrane technologies in the production of drinking water desalination wastewater treatment and recovery

Handbook of Membrane Separations 2008-07-07 issues in life sciences muscle membrane and general microbiology 2011 edition is a scholarlyeditions ebook that

delivers timely authoritative and comprehensive information about life sciences muscle membrane and general microbiology the editors have built issues in life sciences muscle membrane and general microbiology 2011 edition on the vast information databases of scholarlynews you can expect the information about life sciences muscle membrane and general microbiology 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 issues in life sciences muscle membrane and general microbiology 2011 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 scholarlyeditions com

Advances in Membrane Technologies for Water Treatment 2015-02-28 a detailed look at the most recent developments in sustainable membrane technology for use in energy water and the environment a collection of twenty seven groundbreaking papers on important ideas about the development of membrane science and technology sustainable membrane technology for energy water and environment brings together contributions from leading international experts in one comprehensive volume covering the latest developments and most innovative ideas in the field this book is a unique resource for understanding the growing interest in using membranes across several industries divided into six chapters that cover new membrane materials and membrane development membrane applications for gas and vapor separation membrane applications in water treatment environmental applications of membranes energy applications of membranes and other industrial membrane applications the book looks at the current and emerging applications for membrane science and technology in detail as the association of southeast asian nations asean and the middle east emerge as the next generation of membrane research and development centers in part due to their need for water and natural gas production technology this book provides invaluable insights into the cutting edge work taking place in these regions additional topics covered also include new membrane materials membrane applications for food processing and much more designed for engineers scientists professors and graduate students who are engaged in membrane r d activities as well as for anyone interested in sustainable development sustainable membrane technology for energy water and environment is a cutting edge look at membrane applications

Issues in Life Sciences: Muscle, Membrane, and General Microbiology: 2011 Edition 2012-01-09 membranes technology ebook collection contains 4 of our best selling titles providing the ultimate reference for every filtration and separation engineer s library get access to over 1500 pages of reference material at a fraction of the price of the hard copy books this cd contains the complete ebooks of the following 4 titles singh hybrid membrane systems for water purification systems design and operations technology 9781856174428 judd the mbr book principles and applications of membrane bioreactors for water and wastewater treatment 9781856174817 judd membranes for industrial wastewater recovery and re use 9781856173896 hoffman membrane separations technology 9780750677103 four fully searchable titles on one cd providing instant access to the ultimate library of engineering materials for filtration and separation professionals 1500 pages of practical and theoretical membranes information in one portable package incredible value at a fraction of the cost of the print books

Sustainable Membrane Technology for Energy, Water, and Environment 2012-02-28 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

Membranes Technology ebook Collection 2008-09-08 engineering aspects of membrane separation and application in food processing presents an overview and introduction to a wide range of membrane processes their unique characteristics and challenges in the food industry as in many industries membranes have an environmental advantage over conventional processes that they displace because they are less energy intensive the processing at near ambient conditions also retains flavors and nutritional value these advantages together with significant reductions in the cost of membrane modules augers well for their future not only in the dairy industry but in other parts of the food industry such as alcohol processing animal product processing and fruit and vegetable processing chapters address a wide range of membranes separations in the food and beverage industries and applications are provided that will be of value not only to food engineers but also to process engineers working in other areas the processing of food is now a highly interdisciplinary science and anyone concerned with food processing will benefit from reading this book and understanding what membrane processes of the twenty first century have to offer

Membrane Distillation 2011-08-12 membrane physiology second edition is a soft cover book containing portions of physiology of membrane disorders second edition the parent volume contains six major sections this text encompasses the first three sections the nature of biological membranes methods for studying membranes and general problems in membrane biology we hope that this smaller volume will be helpful to individuals interested in general physiology and the methods for studying general physiology thomas e andreoli joseph f hoffman darrell d fanestil stanley g schultz vii preface to the second edition the second edition of physiology of membrane disorders represents an extensive revision and a considerable expansion of the first edition yet the purpose of the second edition is identical to that of its predecessor namely to provide a rational analysis of membrane transport processes in individual membranes cells tissues and organs which in tum serves as a frame of reference for rationalizing disorders in which derangements of membrane transport processes playa cardinal role in the clinical expression of disease as in the first edition this book is divided into a number of individual but closely related sections part v represents a new section where the problem of transport across epithelia is treated in some detail finally part vi which analyzes clinical derangements has been enlarged appreciably

Engineering Aspects of Membrane Separation and Application in Food Processing 2017-06-26 membrane modification technology and applications is written for engineers scientists graduate students and researchers in the field of membrane science and technology materials science applied physics chemistry and environmental science the book presents the complete range of membrane modification techniques used to increase efficiency of membrane processes the book starts with an examination of the use of membrane modification to optimize the performance of membranes used in industry it concludes by demonstrating how membrane modification can improve separation processes in industrial sectors that are recognized as global polluters of water sources features illustrates the use of electrochemical impedance spectroscopy eis in the characterization of commercial and novel membranes overviews various surface modification techniques applied to enhance the bulk and surface properties of nanofiber membranes covers the factors affecting membrane fouling and the use of nanoparticles in membrane modification processes explores the use of plasma treatment for the modification of polymeric membranes written by professors engineers and researchers in the field the book covers recent advances and comprehensively describes novel and most used membrane characterization techniques modification of different materials and geometrics include flat sheet hollow fiber and nano fiber membranes as well as different membrane processes such as reverse osmosis membrane distillation gas separation pervaporation and membrane fuel cells chapters contain tables figures photographs and theoretical equations to aid with reader comprehension

Membrane Physiology 2012-12-06 natural organics removal using membranes principles performance and cost provides a unique combination of important new data and operational parameters on the role of membranes in removing natural organic materials during water treatment it examines and compares the three pressure driven

membrane processes of choice ultrafiltration microfiltration and nanofiltration in removing natural organics including disinfection by products and compounds implicated as carcinogens after presenting a detailed investigation of natural organics the text follows with a careful analysis of the efficiencies and operating conditions of the main membrane processes including discussions of costs and fouling this reference book introduces membranes in water treatment and shows how various methods can be compared with regard to improving process design reducing fouling and selecting the most suitable process given a variety of source water parameters the book contains a most comprehensive literature survey on membranes one that should be of great value to all investigators of membranes in drinking water

Membrane Modification 2016-04-19 to the second edition research into membrane associated phenomena has expanded very greatly in the five years that have elapsed since the first edition of biological membranes was published it is to take account of rapid advances in the field that we have written the present edition there is now general acceptance of the fluid mosaic model of membrane structure and of the chemiosmotic interpretation of energetic processes and our attention has shifted from justifying these ideas to explaining membrane functions in their terms much more information has become available concerning the role of the plasma membrane in the cell s recognition of and response to external signals and this is reflected in the increased coverage of these topics in the book the general form of the book remains the same as before a list of suggested reading sub divided by chapter is provided and this has been expanded to include a greater proportion of original papers the book is still primarily designed as an advanced undergraduate text and also to serve as an introduction for post graduate workers entering the field of membrane research we have taken cognizance of the comments of many reviewers colleagues and students on the first edition and thank them for their contributions in particular we wish to acknowledge our colleagues r eisenthal g d holman d w hough and a h rose dr c r

Natural Organics Removal Using Membranes 2001-08-31 membrane processing is a filtration technique in which particles are separated from liquids by being forced through a porous material or membrane applied to dairy products the separation techniques allow valuable compounds found in milk to be isolated for use as ingredients in food processing a comprehensive overview of membrane separation processes this book explores various applications such as pressure driven processes electrical field driven processes and concentration driven processes for the recovery of various dairy streams and ingredients the topics covered place emphasis on new applications including microfiltration ultrafiltration reverse osmosis electrodialysis and pervaporation the text also presents in depth knowledge of the mechanisms of each membrane separation process as well as membrane types and the equipment used in these processes combining their educational backgrounds and substantial industrial experience in dairy ingredients processes the authors address cutting edge technologies that have been thoroughly researched and have great potential to be commercialized in the near future the book will therefore be of interest to dairy industry professionals and will serve as a source of reference material for professors and students in food science and engineering

Biological Membranes 2013-11-22 current trends and future developments on bio membranes carbon dioxide separation capture by using membranes explores the unique property of membranes to separate gases with different physical and chemical properties the book covers both polymeric and inorganic materials for co2 separation and explains their mechanism of action allowing for the development and most appropriate and efficient processes it also lists the advantages of using membranes instead of other separation techniques i e their low operating costs and low energy consumption this book offers a unique opportunity for scientists working in the field of membrane technology for co2 separation and capture outlines numerous membrane based technologies for co2 separation and capture lists new advanced separation techniques and production processes includes various applications modelling and the economic considerations of each process covers advanced techniques for the separation of co2 in natural gas

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Current Trends and Future Developments on (Bio-) Membranes 2018-07-18

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