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Analysis of Plant Waste Materials Academic Press
This book describes separation and purification techniquesùadsorption, ion exchange and liquid chromatography on solid supportsùused for fermentation and biochemical feedstreams. Emphasis is placed on basic sorption theory, laboratory evaluation techniques, sorptive materials and their characteristics, scale-up of laboratory techniques, and their industrial applications. Each chapter contains specific examples illustrating the use of purification techniques in biotechnology processes.
Life Sciences Industry Macmillan
This book features papers focusing on the implementation of new and future technologies, which were presented at the International Conference on New Technologies, Development and Application, held at the Academy of Science and Arts of Bosnia and Herzegovina in Sarajevo on 27th–29th June 2019. It covers a wide range of future technologies and technical disciplines, including complex systems such as Industry 4.0; robotics; mechatronics systems; automation; manufacturing; cyber-physical and autonomous systems; sensors; networks; control, energy, automotive and biological systems; vehicular networking and connected vehicles; effectiveness and logistics systems, smart grids, as well as nonlinear, power, social and economic systems. We are currently experiencing the Fourth Industrial Revolution “Industry 4.0”, and its implementation will improve many aspects of human life in all segments, and lead to changes in business paradigms and production models. Further, new business methods are emerging, transforming production systems, transport, delivery, and consumption, which need to be monitored and implemented by every company involved in the global market.
Extractive Metallurgy of Nickel, Cobalt and Platinum Group Metals Hassell Street Press
This book presents novel techniques to evaluate electrodialysis processes, to synthesize ionic membranes and to characterize their properties. It shows the potential use of membrane process to the treatment of effluents generated in many industrial sectors such as refineries, leather industries, mining and electroplating processes. The book is based on the results obtained by the author's research group during the past decade. It is useful for students, researchers and engineers interested in membrane technologies for water reuse.
Electrodialysis and Water Reuse Springer Science & Business Media
Modern Methods of Plant Analysis When the handbook Modern Methods of Plant Analysis, was first introduced in 1954, the considerations were: 1. the dependence of scientific progress in biology on the improvement of existing and the introduction of new methods; 2. the difficulty in finding many new analytical methods in specialized journals which are normally not accessible to experimental plant biologists; 3. the fact that in the methods sections of papers the description of methods is frequently so compact, or even sometimes so incomplete, that it is difficult to reproduce experiments. These considerations still stand today. The series was highly successful, seven volumes appearing between 1956 and 1964. Since there is still today a demand for the old series, the publisher has decided to resume publication of Modern Methods of Plant Analysis. It is hoped that the New Series will be just as acceptable to those working in plant sciences and related fields as the early volumes undoubtedly were. It is difficult to single out the major reasons for the success of any publication, but we believe that the methods published in the first series were up-to-date at the time and presented in a way that made description, as applied to plant material, complete in itself with little need to consult other publications. Contribution authors have attempted to follow these guidelines in this New Series of volumes. Editorial The earlier series of Modern Methods of Plant Analysis was initiated by Michel V.
Carbohydrate Microarrays Springer Science & Business Media
Improving the effectiveness of catalysts is the best way to ensure cleaner, more efficient industrial processes for a wide range of applications. Catalyst Preparation: Science and Engineering explores the optimization of catalytic materials through traditional and novel methods of catalyst preparation, characterization, and monitoring on laboratory and industrial scales. The book presents many key principles of heterogeneous catalyst preparation and the methods used to synthesize a catalyst with a particular composition and morphology. The first chapters examine the synthesis of bulk materials including amorphous and mesoporous oxide supports, heteropolyacids, and colloidal metals. Subsequent chapters focus on the syntheses of heterogeneous nanoscale materials, including those based on metal complex – substrate interactions and those using non-interacting precursors via viscous drying. The final chapters concentrate on pretreatment, drying, and finishing effects before concluding with a prognosis on future applications involving catalyst preparation and the technological advances necessary for continued progress. An ideal companion for scientists exploring the preparation of application-specific catalysts based on desired catalytic properties, Catalyst Preparation: Science and Engineering provides a balanced overview of important synthesis parameters to consider for good catalyst design.
Ion Exchange Technology Fuel Cells
The second edition of this invaluable handbook covers converting vegetable oils, animal fats, and used oils into biodiesel fuel. The Biodiesel Handbook delivers solutions to issues associated with biodiesel feedstocks, production issues, quality control, viscosity, stability, applications, emissions, and other environmental impacts, as well as the status of the biodiesel industry worldwide. Incorporates the major research and other developments in the world of biodiesel in a comprehensive and practical format Includes reference materials and tables on biodiesel standards, unit conversions, and technical details in four appendices Presents details on other uses of biodiesel and other alternative diesel fuels from oils and fats
The Biodiesel Handbook Springer
Separation and purification processes play a critical role in biorefineries and their optimal selection, design and operation to maximise product yields and improve overall process efficiency. Separations and purifications are necessary for upstream processes as well as in maximising and improving product recovery in downstream processes. These processes account for a significant fraction of the total capital and operating costs and also are highly energy intensive. Consequently, a better understanding of separation and purification processes, current and possible alternative and novel advanced methods is essential for achieving the overall techno-economic feasibility and commercial success of sustainable biorefineries. This book presents a comprehensive overview focused specifically on the present state, future challenges and opportunities for separation and purification methods and technologies in biorefineries. Topics covered include: Equilibrium Separations: Distillation, liquid-liquid extraction and supercritical fluid extraction. Affinity-Based Separations: Adsorption, ion exchange, and simulated moving bed technologies. Membrane Based Separations: Microfiltration, ultrafiltration and diafiltration, nanofiltration, membrane pervaporation, and membrane distillation. Solid-liquid Separations: Conventional filtration and solid-liquid extraction. Hybrid/Integrated Reaction-Separation Systems: Membrane bioreactors, extractive fermentation, reactive distillation and reactive absorption. For each of these processes, the fundamental principles and design aspects are presented, followed by a detailed discussion and specific examples of applications in biorefineries. Each chapter also considers the market needs, industrial challenges, future opportunities, and economic importance of the separation and purification methods. The book concludes with a series of detailed case studies including cellulosic bioethanol production, extraction of algae oil from microalgae, and production of biopolymers. Separation and Purification Technologies in Biorefineries is an essential resource for scientists and engineers, as well as researchers and academics working in the broader conventional and emerging bio-based products industry, including biomaterials, biochemicals, biofuels and bioenergy.
Applied Biocatalysis Academic Press
This book describes and explains the methods by which three related ores and recyclables are made into high purity metals and chemicals, for materials processing. It focuses on present day processes and future developments rather than historical processes. Nickel, cobalt and platinum group metals are key elements for materials processing. They occur together in one book because they (i) map together on the periodic table (ii) occur together in many ores and (iii) are natural partners for further materials processing and materials manufacturing. They all are, for example, important catalysts – with platinum group metals being especially important for reducing car and truck emissions. Stainless steels and CoNiFe airplane engine super alloys are examples of practical usage. The product emphasises a sequential, building-block approach to the subject gained through the author ’ s previous writings (particularly Extractive Metallurgy of Copper in four editions) and extensive experience. Due to the multiple metals involved and because each metal originates in several types of ore – e.g. tropical ores and arctic ores this necessitates a multi-contributor work drawing from multiple networks and both engineering and science. Synthesizes detailed review of the fundamental chemistry and physics of extractive metallurgy with practical lessons from industrial consultancies at the leading international plants Discusses Nickel, Cobalt and Platinum Group Metals for the first time in one book Reviews extraction of multiple metals from the same tropical or arctic ore Industrial, international and multidisciplinary focus on current standards of production supports best practice use of industrial resources
Separation and Purification Techniques in Biotechnology Springer Science & Business Media
This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.
Ion Exchange Advances Springer Science & Business Media
Presents research results related to various aspects of palladium emissions in the environment, as well as an assessment of their effects on the environment and health. This book focuses on the following topics: analytical methods; sources of palladium emissions; occurrence, chemical behaviour and fate in the environment; and more.
Nuclear Regulatory Commission Issuances Elsevier
This volume contains the papers presented at the Sixth International Ion Exchange Conference organised by the SCI and held at Churchill College, Cambridge, UK, in July 1992. As on previous occasions, most recently in 1988, the organising committee did not engage plenary speakers but decided to solicit state-of-the-art contributions from the ion exchange community. This book contains the refereed papers presented at the meeting, whether in poster or oral form. Extra papers were presented at the meeting as posters because they were not available in time for refereeing purposes. The subject matter of the meeting and therefore the contents of the book is subdivided into seven separate topic areas as follows: resin developments; water treatment; fundamentals; biotechnology, food and pharmaceuticals; environmental and pollution control; membranes, inorganic materials and nuclear; and hydrometallurgy. The coverage of the meeting is similar to 1988 although there are fewer subdivisions on this occasion. The more restricted coverage this time reflects the smaller number of papers offered by authors. This is probably due to the world wide industrial recession which has affected commercial development and exploitation of the technology and restricts the ability of practitioners and academics to contribute to and attend international meetings. Nevertheless, the advances in biotechnology, growing concern about the environment and the. need for novel separation processes have provided sufficient impetus to stimulate a sufficient number of workers in the field.
Essentials of Carbohydrate Chemistry Humana Press
Biochemistry: The Chemical Reactions of Living Cells is a well-integrated, up-to-date reference for basic biochemistry, associated chemistry, and underlying biological phenomena. Biochemistry is a comprehensive account of the chemical basis of life, describing the amazingly complex structures of the compounds that make up cells, the forces that hold them together, and the chemical reactions that allow for recognition, signaling, and movement. This book contains information on the human body, its genome, and the action of muscles, eyes, and the brain. It also features: thousands of literature references that provide

introduction to current research as well as historical background; twice the number of chapters of the first edition; and each chapter contains boxes of information on topics of general interest. -- Publisher description.

Separation and Purification Technologies in Biorefineries John Wiley & Sons

Carbohydrate microarrays emerged as a key technology for the deciphering of the glycospace by providing a multiplex technology where tens to hundreds of carbohydrates/protein interactions can be probed in parallel. Carbohydrate Microarrays: Methods and Protocols aims to give the reader the theoretical and experimental clues necessary for the fabrication and implementation of carbohydrate microarrays. This requires three essential steps: 1) to obtain the carbohydrate probes (monosacharides, oligosacchrides, polysacchairdes, glycoconjugates or glycoclusters), 2) to immobilize these probes, and 3) to implement the protocols for biological/biochemical interaction with the desired target. This volume gives an overview of carbohydrate microarray and carbohydrate chemistry and illustrates different detection techniques and their applications. Written in the successful Methods in Molecular BiologyTM series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols, and notes on troubleshooting and avoiding known pitfalls. Authoritative and easily accessible, Carbohydrate Microarrays: Methods and Protocols compiles a catalogue of protocols on carbohydrate microarrays to span the needs of researchers around the globe.

Uranium Processing and Properties William Andrew

Basic principles of applied life sciences such as recombinant DNA technology is used in most life sciences industries marketing bio-formulations for designing more effective protein-based drugs, such as erythropoietin and fast-acting insulin etc. In recent times genetically engineered host cells from mammal, animal and plants are also being used in life sciences industries to manufacture biologics. This book discusses the most basic as well advanced issues on biological products for successfully managing a life sciences industry. It elucidates the life cycle of biological molecules, right from the conceptual development of different types of biopolymers, and their subsequent transfer from the conical flasks in laboratory to life sciences industries for large scale production and marketing. It focuses on sustainable longevity in the life cycle of commercial biopolymers. Cumulative facts and figures in this volume would immensely help in inspiring life sciences industry promoters to monitor value chain transfer process of biologics for better profitability. Additionally, it would serve as a perusal document for the students and researchers interested in entrepreneurial ventures or having their own start-up projects for the commercialization of biologics.

Handbook of Elemental Speciation II Springer Science & Business Media

Focusing on water supply and treatment, this book offers practical advice on how to improve water quality, optimize water usage and treatment processes, and avoid mistakes when dealing with vendors. It covers topics such as: chemistry of water; water sources; water contaminants; water treatment; water disposal; and industrial use of water.

Fuel Cells Elsevier

Ion-exchange Technology I: Theory and Materials describes the theoretical principles of ion-exchange processes. More specifically, this volume focuses on the synthesis, characterization, and modelling of ion-exchange materials and their associated kinetics and equilibria. This title is a highly valuable source not only to postgraduate students and researchers but also to industrial R&D specialists in chemistry, chemical, and biochemical technology as well as to engineers and industrialists.

Catalyst Preparation John Wiley & Sons

Uranium Processing and Properties describes developments in uranium science, engineering and processing and covers a broad spectrum of topics and applications in which these technologies are harnessed. This book offers the most up-to-date knowledge on emerging nuclear technologies and applications while also covering new and established practices for working with uranium supplies. The book also aims to provide insights into current research and processing technology developments in order to stimulate and motivate innovation among readers. Topics covered include casting technology, plate and sheet rolling, machining of uranium and uranium alloys, forming and fabrication techniques, corrosion kinetics, nondestructive evaluation and thermal modeling.

Bray's Clinical Laboratory Methods Wiley-Liss

Demineralization by Ion Exchange: In Water Treatment and Chemical Processing of Other Liquids presents the methods of demineralization by ion exchange to completely remove dissolved impurities from water and other liquids. This book discusses the developments as well as the engineering and practical aspects in demineralization. Organized into 14 chapters, this book begins with an overview of the history of ion exchange. This text then provides data on the demineralizer equipment, specifying proper materials of construction and design of the shells, their internal distributors, piping, and valves. Other chapters consider the method and equipment design that will help solve water treatment or chemical processing problem with the greatest reliability and economy. This book discusses as well the technical calculations showing how the demineralizer systems are selected. The final chapter deals with the designs of many actual full-scale plants. This book is a valuable resource for executives, consultants, engineers, engineering students, and chemists.

Water Treatment Handbook Walter de Gruyter GmbH & Co KG

The last two decades have seen a rapid growth in the synthetic processing of both simple and complex molecules, aimed at meeting the needs of society in all aspects of life. Many efforts have been devoted to the development of new biologically active compounds, new materials with innovative properties such as bio-compatibility, new catalysts that allow highly selective transformations, and technologies that facilitate the synthetic pro cesses. This book is a compendium of recent progress in all these aspects of synthetic chemistry. It collects the lectures of the XII International Conference on Organic Synthesis, held in Venice from June 28 to July 2, 1998, in which the present state of art of this discipline has been reported. The topics covered include: combinatorial chemistry, new synthetic methods, stereo selective synthesis, metal-mediated synthesis, and target oriented synthesis. The book collects the contributions, in the mentioned topics, of 43 scientists from 19 different countries. The contributions presented in the Conference as plenary lectures are reported in the first section of the book. Particular attention has been dedicated to combinatorial chemistry, a new and promising methodology for the synthesis of libraries of pharmaco logically interesting compounds in order to allow the automatic pharmacological screening of thousands of compounds. The Conference has dedicated to combinatorial chemistry a mini-symposium in which scientists from academy and companies have described the current trends of this very new technology.

Titrimetric Determination of Zirconium John Wiley & Sons

Written by an internationally recognized group of editors and contributors, Handbook of Elemental Speciation, Volume 2 provides a comprehensive, cross-disciplinary presentation of the analytical techniques involved in speciation. Comprehensive coverage of key elements and compounds in situ Addresses the analysis and impact of these elements and compounds, e.g. arsenic, lead, copper, iron, halogens, etc., in food, the environment, clinical and occupational health Detailed methodology and data are reported, as well as regulatory limits Includes general introduction on the impact in these key areas