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Modern Liquid Chromatography of Macromolecules Cambridge University Press

Although there is a shortage of light petroleum, there is plenty of heavy petroleum rich in macromolecules available, creating an increasing interest for processes that can convert heavy oils to light oils. Process Chemistry of Petroleum Macromolecules provides the scientific basis for such processes, presenting methods to determine improvement potential. Topics include characterization, thermal kinetics, phase behavior, and separation. Revealing that the science of petroleum macromolecules is simpler and more exciting than imagined, it also discusses macromolecules that self-associate, liquid crystalline phases, reactions triggered by phase separation, and both dispersed and dissolved solutes.

Molecular Engineering Thermodynamics Cambridge University Press Handbook of Chromatography features tables and chromatograms, theoretical discussions, and practical applications on the topic. Tables and chromatograms are based on polymer analyses abstracted from literature references dating from 1981-1991. Compounds presented in the tables and chromatograms include residual monomers, plasticizers, additives, antioxidants, and products from the thermal degradation (pyrolysis) of a broad range of synthetic polymers. Theoretical discussions focus on new developments in the respective areas of gas, pyrolysis-gas, liquid, and size exclusion chromatographic separations. Capillary column technology, inverse gas chromatography (IGC), supercritical fluid extractions (SFE), and supercritical fluid chromatography (SFC) are also covered. A Practical Applications subsection provides a list of commercial suppliers of column packings and packed columns for gas and liquid chromatography. The book will be an excellent reference for chromatographers, organic chemists, and analytical chemists.

Physical Chemistry for the Biological Sciences John Wiley & Sons Addressing all aspects of the design, modeling and simulation of chromatographic processes, this result-oriented primer provides a practical guide to all the necessary approaches, methodologies and tools. Beginning with key definitions and concepts, it builds up from the most simple to the most complex situations, including multicomponent systems, non-uniform velocity profiles, bed instability, particle size distributions, and the influence of complex environments on chromatographic process design. In addition to covering classical approaches, it introduces efficient tools for investigating chromatographic processes, such as the 'Russian-Lego'

approach for linear systems, phenomenological models, and specific shortcuts for deriving the key properties of industrial processes. With an emphasis on real-world problems and applications, step-by-step modeling design guidelines, and detailed exercises for self-assessment, this is a must-have guide for practitioners and researchers working in chemical, biochemical, food and pharmaceutical engineering.

Research Awards Index CRC Press

"This book is about Recent Progress in Separation of Macromolecules and Particulates"--

Separation of Molecules, Macromolecules and Particles CRC Press

Theoretical and technical bases of electrophoretic methods; Principles of electrophoresis; Moving boundary electrophoresis; Electrophoresis of proteins; Electrophoresis behavior of proteins; Separation of proteins according to their molecular size: estimation of molecular weights; Two-dimensional electrophoretic techniques; Staining of proteins; Detection of proteins; Electrophoretic separation of certain groups of proteins; Electrophoresis of nucleic acids and nucleoproteins; Estimation of the molecular weight of polynucleotides; Electrophoretic separation of glycosaminoglycans.

Food Materials Science John Wiley & Sons Providing chemical engineering undergraduate and graduate students with a basic understanding of how separation of a mixture of molecules, macromolecules or particles is achieved, this textbook is a comprehensive introduction to the engineering science of separation. • Students learn how to apply their knowledge to determine the separation achieved in a given device or process • Real-world examples are taken from biotechnology, chemical, food, petrochemical, pharmaceutical and pollution control industries • Worked examples, elementary separator designs and chapter-end problems are provided, giving students a practical understanding of separation. The textbook systematically develops different separation processes by considering the forces causing the separation and how this separation is influenced by the patterns of bulk flow in the separation device. Readers will be able to take this knowledge and apply it to their own future studies and research in separation and purification. Online

resources include solutions to the exercises and guidance for computer simulations.

Principles of Physical Biochemistry Cambridge University Press

Modern Liquid Chromatography of Macromolecules

Interacting Macromolecules John Wiley & Sons

This book is a collection of the invited special lectures which were delivered at the 34th International Symposium on Macromolecules (MACRO 92), held under the auspices of IUPAC, Prague, Czechoslovakia, 13--18 July 1992. The articles included in this volume range from classic topics in polymer science, such as polymerization chemistry, and structures and properties of macromolecules and polymers, to topics in the field of functional polymers such as pharmaceutical polymers, polymers with electrically and optically useful properties, polymeric sorbents, catalysts, and reagents. In addition articles on new polymeric materials, polymer blends and composites as well as the degradation and stabilization of polymeric materials are included in this volume.

Continuous Biopharmaceutical Processes CRC 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.

Natural Product Extraction 2nd edn Elsevier

This book provides an introduction to physical chemistry that is directed toward applications to the biological sciences. Advanced mathematics is not required. This book can be used for either a one semester or two semester course, and as a reference volume by students and faculty in the biological sciences.

Separation Process Principles VSP

Knowledge of thermodynamics is a necessary tool for describing and understanding the physical behavior of new polymers and polymer blends, for instance, compatibility of components, rheological properties, morphological features, and mechanical properties. This book summarizes in a fairly comprehensive manner the recent technical research accomplishments in the area of thermodynamics, characterizations, and applications of polymer blends. In the first chapter, an overview of thermodynamic behaviors of non-equilibrium polymers is discussed. In

the consecutive chapters, different properties of polymer blends are discussed, including surface tension, transition, crystallization, morphology, and flow behaviors. Miscibility and molecular characterizations of polymer blends are also covered in this book. Applications to various systems are reviewed, and both experimental concerns and references are supplied. In this time when science has such a strong tendency for diversification, this book demonstrates the relevance of one's own activities with neighboring branches of activities. This book is unique in that the mathematics of the physics of polymers are minimized in order not to discourage the interest of a junior or senior undergraduate or new graduate student by an unnecessarily rigorous approach. However, book aims to widen the readers' general knowledge with a better understanding of the physics of polymers. Applications to various systems are reviewed, and both experimental concerns and references are supplied.

Handbook of Chromatography Elsevier

This innovative reference provides a coherent and critical view on the potential benefits of a transition from batch to continuous processes in the biopharmaceutical industry, with the main focus on chromatography. It also covers the key topics of protein stability and protein conjugation, addressing the chemical reaction and purification aspects together with their integration. This book offers a fine balance between theoretical modelling and illustrative case studies, between fundamental concepts and applied examples from the academic and industrial literature. Scientists interested in the design of biopharmaceutical processes will find useful practical methodologies, in particular for single-column and multi-column chromatographic processes.

Microcellular Materials from Rodlike

Macromolecules in Solution Wiley-Interscience

Membrane Technologies for Biorefining highlights the best practices needed for the efficient and environmentally-compatible separation techniques that are fundamental to the conversion of biomass to fuels and chemicals for use as alternatives to petroleum refining. Membrane technologies are increasingly of interest in biorefineries due to their modest energy consumption, low chemical requirements, and excellent separation efficiency. The book provides researchers in academia and industry with an authoritative overview of the different types of membranes and highlights the ways in which they can be applied in biorefineries for the production of chemicals and biofuels. Topics have been selected to highlight both the variety of raw materials treated in biorefineries and the range of biofuel and chemical end-products. Presents the first book to focus specifically

on membrane technologies in biorefineries
Provides a comprehensive overview of the different types of membranes and highlight ways in which they can be applied in biorefineries for the production of chemicals and biofuels
Topics selected highlight both the variety of raw materials treated using membranes in biorefineries and the range of biofuel and chemical end-products

HPLC of Macromolecules Cambridge University Press

Chemical biology utilizes chemical principles to modulate systems to either investigate the underlying biology or create new function. Over recent years, chemical biology has received particular attention of many scientists in the life sciences from botany to medicine. This book contains an overview focusing on the research area of protein purification, enzymology, vitamins, antioxidants, biotransformation, gene delivery, signaling, regulation and organization. Particular emphasis is devoted to both theoretical and experimental aspects. The textbook is written by international scientists with expertise in synthetic chemistry, protein biochemistry, enzymology, molecular biology, drug discovery and genetics many of which are active chemical, biochemical and biomedical research. The textbook is expected to enhance the knowledge of scientists in the complexities of chemical and biological approaches and stimulate both professionals and students to dedicate part of their future research in understanding relevant mechanisms and applications of chemical biology.

Separation of Molecules, Macromolecules and Particles Elsevier

Integrating coverage of polymers and biological macromolecules into a single text, Physical Chemistry of Macromolecules is carefully structured to provide a clear and consistent resource for beginners and professionals alike. The basic knowledge of both biophysical and physical polymer chemistry is covered, along with important terms, basic structural properties and relationships. This book includes end of chapter problems and references, and also: Enables users to improve basic knowledge of biophysical chemistry and physical polymer chemistry. Explores fully the principles of macromolecular chemistry, methods for determining molecular weight and configuration of molecules, the structure of macromolecules, and their separations.

Essentials in Modern HPLC Separations Wiley-Interscience

Selection of the HPLC Method in Chemical Analysis serves as a practical guide to users of high-performance liquid chromatography and provides criteria for method selection, development, and validation. High-performance liquid chromatography (HPLC) is the most common analytical technique

currently practiced in chemistry. However, the process of finding the appropriate information for a particular analytical project requires significant effort and pre-existent knowledge in the field. Further, sorting through the wealth of published data and literature takes both time and effort away from the critical aspects of HPLC method selection. For the first time, a systematic approach for sorting through the available information and reviewing critically the up-to-date progress in HPLC for selecting a specific analysis is available in a single book. Selection of the HPLC Method in Chemical Analysis is an inclusive go-to reference for HPLC method selection, development, and validation. Addresses the various aspects of practice and instrumentation needed to obtain reliable HPLC analysis results Leads researchers to the best choice of an HPLC method from the overabundance of information existent in the field Provides criteria for HPLC method selection, development, and validation Authored by world-renowned HPLC experts who have more than 60 years of combined experience in the field

Polymeric Gas Separation Membranes Cambridge University Press

This book discusses in a systematic manner the role of separation in HPLC, the types and characteristics of stationary phases and of mobile phases used in this technique, as well as other factors influencing the separation. The selection process of stationary and mobile phase for a specific separation is described as related to the physico-chemical characteristics of the molecules to be separated and of their matrix. All these subjects are discussed from the point of view of the new developments in HPLC. The book also includes a part presenting the practice of modern HPLC as necessary for applications, particularly related to the analysis of pharmaceutical and biological samples, food and beverages, environmental samples, etc. Gives a clear presentation of notions and concepts Discusses key parameters in HPLC separation Includes modern developments in HPLC Describes interrelation between various HPLC features (solvent pressure, separation, detection) Includes a large number of references.

Design and Processing of Particulate Products Macmillan

The critically acclaimed laboratory standard for more than forty years, *Methods in Enzymology* is one of the most highly respected publications in the field of biochemistry. Since 1955, each volume has been eagerly awaited, frequently consulted, and praised by researchers and reviewers alike. More than 260 volumes have been published (all of them still in print) and much of the material is relevant even today--truly an essential publication for researchers in all fields of life sciences. Liquid chromatography Electrophoresis Mass spectrometry

Physical Chemistry of Macromolecules

Cambridge University Press

HPLC stands for high pressure (or performance) liquid chromatography, and is a standard biochemical technique for separating molecules. This volume covers the larger biomolecules--oligosaccharides, glycopeptides, oligonucleotides, polypeptides, and proteins--and includes the latest advances in microbore and packed capillary technology, and in the use of mass spectrometric detection.

Chromatographic Processes Oxford University Press, USA

Many techniques of molecular biology involve the transport of macromolecules in solution and are described in the four chapters of this volume. The rates at which macromolecules move in solution are determined by their sizes and shapes (Chapter 1). Molecules can be induced to sediment by applying a centrifugal force, and the rates at which they do so also provide information about their sizes and shapes (Chapter 2). Proteins and nucleic acids usually have overall net electrical charges, due to ionized groups, so they can be induced to migrate in an electrical field; such electrophoretic techniques are central to molecular biology (Chapter 3). The large sizes of macromolecules can make it impossible for them to enter pores of molecular sieves, which can provide information about their sizes and also permit their separation from molecules of other sizes (Chapter 4).