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Analytical Chemistry John Wiley & Sons
High pressure liquid chromatography – frequently called high performance liquid chromatography (HPLC or, LC) is the premier analytical technique in pharmaceutical analysis and is predominantly used in the pharmaceutical industry. Written by selected experts in their respective fields, the Handbook of Pharmaceutical Analysis by HPLC Volume 6, provides a complete yet concise reference guide for utilizing the versatility of HPLC in drug development and quality control. Highlighting novel approaches in HPLC and the latest developments in hyphenated techniques, the book captures the essence of major pharmaceutical applications (assays, stability testing, impurity testing, dissolution testing, cleaning validation, high-throughput screening). A complete reference guide to HPLC Describes best practices in HPLC and offers 'tricks of the trade' in HPLC operation and method development Reviews key HPLC pharmaceutical applications and highlights currents trends in HPLC ancillary techniques, sample preparations, and data handling
Microcolumn High-Performance Liquid Chromatography Springer Science & Business Media
A concise yet comprehensive reference guide on HPLC/UHPLC that focuses on its fundamentals, latest developments, and best practices in the pharmaceutical and biotechnology industries Written for practitioners by an expert practitioner, this new edition of HPLC and UHPLC for Practicing Scientists adds numerous updates to its coverage of high-performance liquid chromatography, including comprehensive information on UHPLC (ultra-high-pressure liquid chromatography) and the continuing migration of HPLC to UHPLC, the modern standard

platform. In addition to introducing readers to HPLC ' s fundamentals, applications, and developments, the book describes basic theory and terminology for the novice, and reviews relevant concepts, best practices, and modern trends for the experienced practitioner. HPLC and UHPLC for Practicing Scientists, Second Edition offers three new chapters. One is a standalone chapter on UHPLC, covering concepts, benefits, practices, and potential issues. Another examines liquid chromatography/mass spectrometry (LC/MS). The third reviews at the analysis of recombinant biologics, particularly monoclonal antibodies (mAbs), used as therapeutics. While all chapters are revised in the new edition, five chapters are essentially rewritten (HPLC columns, instrumentation, pharmaceutical analysis, method development, and regulatory aspects). The book also includes problem and answer sections at the end of each chapter. Overviews fundamentals of HPLC to UHPLC, including theories, columns, and instruments with an abundance of tables, figures, and key references Features brand new chapters on UHPLC, LC/MS, and analysis of recombinant biologics Presents updated information on the best practices in method development, validation, operation, troubleshooting, and maintaining regulatory compliance for both HPLC and UHPLC Contains major revisions to all chapters of the first edition and substantial rewrites of chapters on HPLC columns, instrumentation, pharmaceutical analysis, method development, and regulatory aspects Includes end-of-chapter quizzes as assessment and learning aids Offers a reference guide to graduate students and practicing scientists in pharmaceutical, biotechnology, and other industries Filled with intuitive explanations, case studies, and clear figures, HPLC and UHPLC for Practicing Scientists, Second Edition is an essential resource for practitioners of all levels who need to understand and utilize this versatile analytical technology. It will be a great benefit to every busy laboratory analyst and researcher.

Basic Bioscience Laboratory Techniques Elsevier

High performance liquid chromatography (HPLC) has long been recognized as one of the most useful and versatile analytical techniques. It has now progressed from being a highly expensive method of analysis to a routine technique with wide applications. Consequently there is a requirement in many chemistry and chemistry-related courses for students to acquire a detailed understanding of the principles and practice of HPLC. Written in a manner suitable for undergraduate students studying analytical chemistry and learning about chromatographic analytical techniques applied to pharmaceutical analysis, biochemistry and related disciplines, High-performance Liquid Chromatography: Fundamental Principles and Practice introduces the fundamentals of HPLC. Loosely structured in three parts, the text begins with a thorough introduction of the subject and then progresses through the essential knowledge of the instrumentation needed for HPLC. The final part covers with the applications of HPLC in real-world situations. Developed by a team of international experts from a wide cross-section of disciplines, the text is relevant to a wide range of courses.

Principles and Practices John Wiley & Sons

Gradient elution demystified Of the various ways in which chromatography is applied today, few have been as misunderstood as the technique of gradient elution, which

presents many challenges compared to isocratic separation. When properly explained, however, gradient elution can be less difficult to understand and much easier to use than often assumed. Written by two well-known authorities in liquid chromatography, High-Performance Gradient Elution: The Practical Application of the Linear-Solvent-Strength Model takes the mystery out of the practice of gradient elution and helps remove barriers to the practical application of this important separation technique. The book presents a systematic approach to the current understanding of gradient elution, describing theory, methodology, and applications across many of the fields that use liquid chromatography as a primary analytical tool. This up-to-date, practical, and comprehensive treatment of gradient elution: * Provides specific, step-by-step recommendations for developing a gradient separation for any sample * Describes the best approach for troubleshooting problems with gradient methods * Guides the reader on the equipment used for gradient elution * Lists which conditions should be varied first during method development, and explains how to interpret scouting gradients * Explains how to avoid problems in transferring gradient methods With a focus on the use of linear solvent strength (LSS) theory for predicting gradient LC behavior and separations by reversed-phase HPLC, High-Performance Gradient Elution gives every chromatographer access to this useful tool.

A Pocket Guide Elsevier

A convenient source of information for workers in analytical chemistry, experimental biology, physics, and engineering, this Second Edition stands as a quick reference source and clear guide to specific chromatographic techniques and principles-providing a basic introduction to the science and technology of the method, as well as additional references on the theory and methodology for analysis of specific chemicals and applications in a range of industries.

Handbook of Advanced Chromatography /Mass Spectrometry Techniques John Wiley & Sons

This unique, practical, pocket-sized guide and reference provides every first year bioscience student with all they need to know to prepare reagents correctly and perform fundamental laboratory techniques. It also helps them to analyse their data and present their findings, in addition to directing the reader, via a comprehensive list of references, to relevant further reading All of the core bioscience laboratory techniques are covered including: basic calculations and the preparation of solutions; aseptic techniques; microscopy techniques; cell fractionation ; spectrophotometry; chromatography of small and large molecules: electrophoresis of proteins and nucleic acids and data analysis. In addition the book includes clear, relevant diagrams and worked examples of calculations. In short, this is a 'must-have' for all first year bioscience students struggling to get to grips with this vitally important element of their course.

Introduction to Chromatography John Wiley & Sons

Since the first edition of this book the major advances have been in column packings, where over ninety per cent of separations are now performed using chemically bonded microparticulate packings, and in instrumentation. The use of microprocessor control has brought about a rationalization of mobile phase

delivery systems and in detectors, the introduction of electrochemical and spectrophotometric detection other than in the ultra-violet region, has widened the field of applications and the sensitivity of the technique. The use of ion pair chromatography has increased at the expense of ion-exchange and this together with the improvements in detectors has greatly increased the appli cation of the technique in the biomedical field. These advances are described together with the established methods to enable the beginner to carry out a satisfactory separation and to gain the experience necessary for the full exploitation of the technique. R. J. Hamilton P. A. Sewell Liverpool,1981 1 Introduction to high performance liquid chromatography 1. 1 Introduction Chromatography in its many forms is widely used as a separative and an analytical technique. Gas chromatography since its introduction by James and Martin [1] has been pre-eminent in the field. Uquid chromatography in the of paper, thin-layer, ion-exchange, and exclusion (gel permeation and gel form filtration) chromatography had not been able to achieve the same success, mainly because of the poor efficiences and the long analysis times arising from the low mobile phase flow rates.

Fundamentals and applications of chromatography and related differential migration methods - Part B: Applications Royal Society of Chemistry

An in-depth guide to HPLC column technology High-performance liquid chromatography and its derivative techniques have become the dominant analytical separation tools in the pharmaceutical, chemical, and food industries; environmental laboratories; and therapeutic drug monitoring. Although the column is the heart of the HPLC instrument and essential to its success, until now, no book has focused on the theory and practice of column technology. HPLC Columns provides thorough, state-of-the-art coverage of HPLC column technology for the practicing technician and academician alike. Along with a comprehensive discussion of the chemical and physical processes of the HPLC column, it includes fundamental principles, separation mechanisms and available technologies, column selection criteria, and special techniques. Special features include: * Comprehensive overview of state-of-the-art HPLC column technology * Explanation of the underlying principles of HPLC columns * Methods for selecting columns * Practical advice on using and applying columns, including examples * Section by M. Zoubair El Fallah on methods development * Special techniques, including preparative chromatography, continuous chromatography, and the simulated moving bed * Troubleshooting section HPLC Columns helps laboratory practitioners make better choices in column selection, methods development, and troubleshooting: it is also an excellent textbook for graduate-level courses and HPLC short courses.

Practical High-Performance Liquid Chromatography Elsevier

This book provides a unified and balanced introduction to the general theory of chromatography, followed by a detailed treatment of the principles and practice of all the major techniques currently employed in the industrial and academic sectors. It is written as a broad introduction to the subject for mid to advanced undergraduates in chemistry, pharmacy, biochemistry, and is suitable for students

following the now quite numerous Masters degrees in instrumental analysis. The book has been updated to incorporate advances of the last ten years, and it contains around 50% new or revised material.

Principles and Instrumentation John Wiley & Sons

Jump into the HPLC adventure! Three decades on from publication of the 1st German edition of Veronika Meyer's book on HPLC, this classic text remains one of the few titles available on general HPLC aimed at practitioners. New sections on the following topics have been included in this fifth edition: Comparison of HPLC with capillary electrophoresis How to obtain peak capacity van Deemter curves and other coherences Hydrophilic interaction chromatography Method transfer Comprehensive two-dimensional HPLC Fast separations at 1000 bar HPLC with superheated water In addition, two chapters on the instrument test and troubleshooting in the appendix have been updated and expanded by Bruno E. Lendi, and many details have been improved and numerous references added. A completely new chapter is presented on quality assurance covering: Is it worth the effort? Verification with a second method Method validation Standard operating procedures Measurement uncertainty Qualifications, instrument test, and system suitability test The quest for quality Reviews of earlier editions "That this text is written by an expert in both the practice and teaching of HPLC is evident from the first paragraph....not only an enjoyable, fascinating and easy read, but a truly excellent text that has and will serve many teachers, students and practitioners very well." —The Analyst "…provides essential information on HPLC for LC practitioners in academia, industry, government, and research laboratories…a valuable introduction." - American Journal of Therapeutics

Preparative Liquid Chromatography Elsevier

This book provides the industrial chromatographer and production scientist with a comprehensive account of process scale liquid chromatography. The basic theory is presented, guiding the reader through system design, simulation and modelling techniques, giving due consideration to economic aspects, as well as safety and regulatory factors. A thorough, up-to-date survey of current techniques and media does stress their advantages and limitations in such a way as to faciliate their application to real-life problems. In view of rapid rate of development in industrial chromatography one chapter provides an assessment of future developments. The chapters are written by acknowledged experts from Europe and the United States.

Chromatographic Methods John Wiley & Sons

A comprehensive study of analytical chemistry providing the basics of analytical chemistry and introductions to the laboratory Covers the basics of a chemistry lab including lab safety, glassware, and common instrumentation Covers fundamentals of analytical techniques such as wet chemistry, instrumental analyses, spectroscopy, chromatography, FTIR, NMR, XRF, XRD, HPLC, GC-MS, Capillary Electrophoresis, and proteomics Includes ChemTech an interactive program that contains lesson exercises, useful calculators and an interactive periodic table Details Laboratory Information Management System a program used to log in samples, input data, search samples, approve samples, and print reports and certificates of analysis

HPLC Method Development for Pharmaceuticals Elsevier

"Forensic Applications of High Performance Liquid Chromatography uses real-life examples likely to be found within a forensic science laboratory to explain HPLC from a forensic perspective." "The book presents key point summaries and questions to enhancelearning and test comprehension, provides a complete glossary of terms, and includes references at the end of each chapter to facilitate further study. An invaluable guide for those in the early

stages of their forensic analysis careers, this volume is also suitable as a textbook for university students studying analytical chemistry, applied chemistry, forensic chemistry, or other courses with an element of HPLC within the course curriculum."--BOOK JACKET.

Analysis of Drugs and Poisons CRC Press

Though many separation processes are available for use in todays analytical laboratory, chromatographic methods are the most widely used. The applications of chromatography have grown explosively in the last four decades, owing to the development of new techniques and to the expanding need of scientists for better methods of separating complex mixtures. With its comprehensive, unified approach, this book will greatly assist the novice in need of a reference to chromatographic techniques, as well as the specialist suddenly faced with the need to switch from one technique to another.

Fundamentals and Applications of Chromatographic and Electrophoretic Methods. Part A: Fundamentals and Techniques CRC Press

The latest edition of the authoritative reference to HPLC High-performance liquid chromatography (HPLC) is today the leading technique for chemical analysis and related applications, with an ability to separate, analyze, and/or purify virtually any sample. Snyder and Kirkland's Introduction to Modern Liquid Chromatography has long represented the premier reference to HPLC. This Third Edition, with John Dolan as added coauthor, addresses important improvements in columns and equipment, as well as major advances in our understanding of HPLC separation, our ability to solve problems that were troublesome in the past, and the application of HPLC for new kinds of samples. This carefully considered Third Edition maintains the strengths of the previous edition while significantly modifying its organization in light of recent research and experience. The text begins by introducing the reader to HPLC, its use in relation to other modern separation techniques, and its history, then leads into such specific topics as: The basis of HPLC separation and the general effects of different experimental conditions Equipment and detection The column—the "heart" of the HPLC system Reversed-phase separation, normal-phase chromatography, gradient elution, two-dimensional separation, and other techniques Computer simulation, qualitative and quantitative analysis, and method validation and quality control The separation of large molecules, including both biological and synthetic polymers Chiral separations, preparative separations, and sample preparation Systematic development of HPLC separations—new to this edition Troubleshooting tricks, techniques, and case studies for both equipment and chromatograms Designed to fulfill the needs of the full range of HPLC users, from novices to experts, Introduction to Modern Liquid Chromatography, Third Edition offers the most up-to-date, comprehensive, and accessible survey of HPLC methods and applications available.

High Performance Liquid Chromatography & Capillary Electrophoresis Elsevier

This title presents a comprehensive overview of the principles, methods and fundamental theories used in the separation, quantification and analysis of individual compounds and substances. It identifies recent advances, mathematical relationships and useful design techniques for optimal system operation and control of chemical and chromatographic processes.

Springer

The use of High Performance Liquid Chromatography (HPLC) techniques in the study of enzymatic reactions has grown significantly since the publication of the first edition of this highly successful book:

the role of enzymes in biological research has expanded; the application of HPLC and enzymes has extended to more disciplines; advances in separation techniques and instrumentation have increased the capability of HPLC; and the discovery of new enzymes has spawned new methods of analysis. High Performance Liquid Chromatography in Enzymatic Analysis, Second Edition addresses these developments in its coverage of the refinements of HPLC methods and their use in a wide range of laboratory applications. It offers the same practical approach found in the first edition, incorporates a wealth of new information into existing chapters, and adds new chapters to deal with new applications, including capillary electrophoresis, forensic chemistry, microdialysis, and the polymerase chain reaction. Topics include: * Application of HPLC to the assay of enzymatic activities * Concepts and principles of HPLC, including the latest technological advances * Concepts and principles of capillary electrophoresis (CE) * Strategy for design of an HPLC/CE system for assay of enzyme activity * Preparation of enzymatic activities from tissues and single cells * Analysis of enzymatic activities in body fluids, including chromatobiosis * HPLC for the identification of new enzymatic activities * Fundamentals of the polymerase chain reaction * HPLC in forensics * Survey of enzymatic activities assayed by the HPLC method, including many new categories * Multienzyme systems, including many new examples * HPLC in the analysis of contaminated food "It is the ability of HPLC to accomplish separations completely and rapidly that led to its original application to problems in the life sciences, particularly those related to purification. An analysis of the literature revealed that this technique was used primarily for the purification of small molecules, macromolecules such as peptides and proteins, and more recently, antibodies. This application to purification has all but dominated the use of the method, and there has been a plethora of books, symposia, and conferences on the use of HPLC for these purposes. However, it was only a matter of time before others began to look beyond and to explore the possibilities that result from the capacity to make separations quickly and efficiently." --from the preface to the First Edition Easy to read and full of practical advice and hundreds of diagrams and examples, High Performance Liquid Chromatography in Enzymatic Analysis, Second Edition is an invaluable resource for students, researchers, and laboratory workers in analytical chemistry and biochemistry, molecular biology and cell biology, and for anyone interested in keeping up with this fast-growing field.

High Performance Liquid Chromatography World Scientific HPLC and CE: Principles and Practice presents the latest information on the most powerful separation techniques available: high-performance liquid chromatography (HPLC) and capillary electrophoresis (CE). Fundamental theory, instrumentation, modes of operation, and optimization of separations are presented in a concise, non-technical style to help the user in choosing the appropriate technique quickly and accurately. Well- illustrated and containing convenientend-of-chapter summaries of the major concepts, the book provides in-depth coverage of trouble-shooting, improvement of resolution, data manipulation, selectivity, and sensitivity. Graduate students, technicians, and researchers who must use separations with little or no background in analytical chemistry can overcome separation anxiety and get started in obtaining the best possible separations in minimal time. The book will alsobe useful to analytical chemists who need a better understanding of theory and processes. Fully up-to-date information on both HPLC and CE includes troubleshooting and comparisons of the two techniques Applicable to a wide

variety of separation problems Covers basic concepts governing any separation as well as instrumentation and how to use it Helps the user to obtain optimal resolution in minimal time Contains information on special procedures such as chiral separations, affinity chromatography, and sample preparation Includes information on upcoming trends such as miniaturization Major concepts in each chapter are organized to allow access to information easily and quickly Contains practical bibliography for accessing the literature

Supercritical Fluid Chromatography Elsevier

This volume provides a straightforward approach to isolation and purification problems with a thorough presentation of preparative LC strategy including the interrelationship between the input and output of the instrumentation, while keeping to an application focus. The book stresses the practical aspects of preparative scale separations from TLC isolations through various laboratory scale column separations to very large scale production. It also gives a thorough description of the performance parameters (e.g. throughput, separation quality, etc.) as a function of operational parameters (e.g. particle size, column size, solvent usage, etc.). Experts in the field have contributed a well balanced presentation of separation development strategies from preparative TLC to commercial preparative process with practical examples in a wide variety of application areas such as drugs, proteins, nucleotides, industrial extracts, organic chemicals, enantiomers, polymers, etc.

Tutorials in Analytical Chemistry: Training and Education in Chemical Metrology John Wiley & Sons

Supercritical fluid chromatography (SFC) is a rapidly developing laboratory technique for the separation and identification of compounds in mixtures. Significant improvements in instrumentation have rekindled interest in SFC in recent years and enhanced its standing in the scientific community. Many scientists are familiar with column liquid chromatography and its strengths and weaknesses, but the possibilities brought to the table by SFC are less well-known and are underappreciated. Supercritical Fluid Chromatography is a thorough and encompassing reference that defines the concept of contemporary practice in SFC and how it should be implemented in laboratory science. Given the changes that have taken place in SFC, this book presents contemporary aspects and applications of the technique and introduces SFC as a natural solution in the larger field of separation science. The focus on state-of-the-art instrumental SFC distinguishes this work as the go-to reference work for those interested in implementing the technique at an advanced level. Edited and authored by world-leading chromatography experts Provides comprehensive coverage of SFC in a single source Extensive referencing facilitates identification of key research developments More than 200 figures and tables aid in the retention of key concepts