

Preparative HPLC Troubleshooting Guide

Your guide to solving common problems and staying productive

Places to start

Errors

- See error messages below to learn more about
- See the HPLC error messages

Proper setpoint or the pump

- Ensure solvent delivery and solvent flow
- Ensure setpoint and solvent delivery are correct
- Use the appropriate system configuration method

Early tests

- Replace reagents and replace mobile phase every second day
- Check and reset system
- Start the system with the composition of your application

Early tests

- Change solvent system, solvent, and solvent flow
- Check system configuration and change flow if necessary

Early tests

- Check if the system is properly configured and setpoint
- Check the system with appropriate solvent and setpoint

Early tests

- Remove all solvent and solvent composition from system
- Check mobile phase flow (pump) and solvent delivery
- Check system with HPLC solvent and HPLC solvent composition to avoid trapping or faster degradation of column



Maintenance

Agilent Lab Manager software helps you manage and optimize all instruments to achieve high quality, chromatographic results. The more efficient you are using high volume performance, productivity, reliability, it is a solution for all change.

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Flow rate



Flow rate



Flow rate



Flow rate



Flow rate



Problem	Solution
Flow rate is too low	Check solvent delivery and solvent flow
Flow rate is too high	Check solvent delivery and solvent flow
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Flow rate is too high	Check solvent delivery and solvent flow
Flow rate is too low	Check solvent delivery and solvent flow
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Eugenio Aulisa, David Gilliam



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Fundamentals of Environmental Sampling and Analysis Chunlong Zhang, 2007-03-09 An integrated approach to understanding the principles of sampling chemical analysis and instrumentation This unique reference focuses on the overall framework and why various methodologies are used in environmental sampling and analysis An understanding of the underlying theories and principles empowers environmental professionals to select and adapt the proper sampling and analytical protocols for specific contaminants as well as for specific project applications Covering both field sampling and laboratory analysis *Fundamentals of Environmental Sampling and Analysis* includes A review of the basic analytical and organic chemistry statistics hydrogeology and environmental regulations relevant to sampling and analysis An overview of the fundamentals of environmental sampling design sampling techniques and quality assurance quality control QA QC essential to acquire quality environmental data A detailed discussion of the theories of absorption spectroscopy for qualitative and quantitative environmental analysis metal analysis using various atomic absorption and emission spectrometric methods and the instrumental principles of common chromatographic and electrochemical methods An introduction to advanced analytical techniques including various hyphenated mass spectrometries and nuclear magnetic resonance spectroscopy With real life case studies that illustrate the principles plus problems and questions at the end of each chapter to solidify understanding this is a practical hands on reference for practitioners and a great textbook for upper level undergraduates and graduate students in environmental science and engineering

HPLC and UHPLC for Practicing Scientists Michael W. Dong, 2019-07-23 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 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

The HPLC Expert Stavros Kromidas, 2016-03-28 The rapid development of HPLC instrumentation and technology opens numerous possibilities and entails new questions Which column should I choose to obtain best results which gradient fits to my analytical problem what are recent and promising trends in detection techniques what is state of the art regarding LC MS coupling All these questions are answered by experts in ten self contained chapters Besides these more hardware related and technical chapters further related areas of interest are covered Comparison of recent chromatographic data systems and integration strategies smart documentation efficient information search in internet and tips for a successful FDA inspection This practical approach offers in a condensed manner recent trends and hints and will also display the advanced reader mistakes and errors he was not aware of so far

Forensic Applications of High Performance Liquid Chromatography Shirley Bayne, 2017-07-27 Chromatography has many roles in forensic science ranging from toxicology to environmental analysis In particular high performance liquid chromatography HPLC is a primary method of analysis in many types of laboratories Maintaining a balance between practical solutions and the theoretical considerations involved in HPLC analysis

Forensic App Handbook of LC-MS Bioanalysis Wenkui Li, Jie Zhang, Francis L. S. Tse, 2013-09-03 Consolidates the information LC MS bioanalytical scientists need to analyze small molecules and macromolecules The field of bioanalysis has advanced rapidly propelled by new approaches for developing bioanalytical methods new liquid chromatographic LC techniques and new mass spectrometric MS instruments Moreover there are a host of guidelines and regulations designed to ensure the quality of bioanalytical results Presenting the best practices experimental protocols and the latest understanding of regulations this book offers a comprehensive review of LC MS bioanalysis of small molecules and macromolecules It not only addresses the needs of bioanalytical scientists working on routine projects but also explores advanced and emerging technologies such as high resolution mass spectrometry and dried blood spot microsampling

Handbook of LC MS Bioanalysis features contributions from an international team of leading bioanalytical scientists Their contributions reflect a review of the latest findings practices and regulations as well as their own firsthand analytical laboratory experience The book thoroughly examines Fundamentals of LC MS bioanalysis in drug discovery drug development and therapeutic drug monitoring The current understanding of regulations governing LC MS

bioanalysis Best practices and detailed technical instructions for LC MS bioanalysis method development validation and stability assessment of analyte s of interest Experimental guidelines and protocols for quantitative LC MS bioanalysis of challenging molecules including pro drugs acyl glucuronides N oxides reactive compounds and photosensitive and autooxidative compounds With its focus on current bioanalytical practice Handbook of LC MS Bioanalysis enables bioanalytical scientists to develop and validate robust LC MS assay methods all in compliance with current regulations and standards

Principles and Practice of Modern Chromatographic Methods Kevin Robards,Danielle Ryan,2021-12-03 Principles and Practice of Modern Chromatographic Methods Second Edition takes a comprehensive unified approach in its presentation of chromatographic techniques Like the first edition the book provides a scientifically rigid but easy to follow presentation of chromatography concepts that begins with the purpose and intent of chromatographic theory the what and why that are left out of other books attempting to cover these principles This fully revised second edition brings the content up to date covering recent developments in several new sections and an additional chapter on composite methods New topics include sample profiling sample preparation sustainable green chemistry 2D chromatography miniaturization nano LC HILIC and more Contains thorough chapters that begin with an updated schematic overview and a visual representation of the content Avoids the obfuscation of different terminologies and classification systems that are prevalent in the area such as the relationship between liquid chromatography and column chromatography Provides integrated and comprehensive topic coverage based on chromatographic bibliometrics and survey reports on the relative usage of chromatographic techniques

Der HPLC-Experte Stavros Kromidas,2014-01-22 Der rasanten Entwicklung auf dem Gebiet der HPLC wird mit diesem Buch Rechnung getragen Von Gradientenoptimierung ber Kopplungs und 2D Techniken bis zu Dokumentation und Informationsbeschaffung aktuell und kompakt geschrieben von Praktikern f r Praktiker Inhalt 1 LC MS Kopplung 1 1 Stand der Technik in der LC MS Kopplung 1 2 Technische Aspekte und Fallstricke der LC MS Kopplung 1 3 LC MS Kopplung ein praktisches Beispiel aus der Ionenchromatographie 2 HPLC GC Kopplung in der Praxis Theorie Applikationsbeispiele und Ausblick 3 Optimierungsstrategien in der RP HPLC 4 Der Gradient in der RP Chromatographie 4 1 Aspekte der Gradienten Optimierung 4 2 Vorhersagen von Gradienten 5 Vergleich und Auswahl von modernen HPLC S ulen 6 Trenntechniken in der Biochromatographie 7 Moderne HPLC Softwareprogramme Eigenschaften Vergleich Ausblick 8 M glichkeiten der richtigen Integration heute 9 HPLC im reglementierten Bereich 9 1 Intelligente Dokumentationen 9 2 Tipps f r eine gelungene FDA Inspektion 10 Effiziente Informationsbeschaffung im Zeitalter von Web 2 0 am Beispiel der HPLC 11 Trends in der Detektionstechnik

Instrument and Automation Engineers' Handbook Bela G. Liptak,Kriszta Venczel,2022-08-31 The Instrument and Automation Engineers Handbook IAEH is the Number 1 process automation handbook in the world The two volumes in this greatly expanded Fifth Edition deal with measurement devices and analyzers Volume one Measurement and Safety covers safety sensors and the detectors of physical properties while volume two Analysis and Analysis describes the

measurement of such analytical properties as composition Complete with 245 alphabetized chapters and a thorough index for quick access to specific information the IAEH Fifth Edition is a must have reference for instrument and automation engineers working in the chemical oil gas pharmaceutical pollution energy plastics paper wastewater food etc industries **Analysis and Analyzers** Béla G. Lipták, Kriszta Venczel, 2016-11-25 The Instrument and Automation Engineers Handbook IAEH is the 1 process automation handbook in the world Volume two of the Fifth Edition Analysis and Analyzers describes the measurement of such analytical properties as composition Analysis and Analyzers is an invaluable resource that describes the availability features capabilities and selection of analyzers used for determining the quality and compositions of liquid gas and solid products in many processing industries It is the first time that a separate volume is devoted to analyzers in the IAEH This is because by converting the handbook into an international one the coverage of analyzers has almost doubled since the last edition Analysis and Analyzers Discusses the advantages and disadvantages of various process analyzer designs Offers application and method specific guidance for choosing the best analyzer Provides tables of analyzer capabilities and other practical information at a glance Contains detailed descriptions of domestic and overseas products their features capabilities and suppliers including suppliers web addresses Complete with 82 alphabetized chapters and a thorough index for quick access to specific information Analysis and Analyzers is a must have reference for instrument and automation engineers working in the chemical oil gas pharmaceutical pollution energy plastics paper wastewater food etc industries About the eBook The most important new feature of the IAEH Fifth Edition is its availability as an eBook The eBook provides the same content as the print edition with the addition of thousands of web addresses so that readers can reach suppliers or reference books and articles on the hundreds of topics covered in the handbook This feature includes a complete bidders list that allows readers to issue their specifications for competitive bids from any or all potential product suppliers A Practical Guide to Geometric Regulation for Distributed Parameter Systems Eugenio Aulisa, David Gilliam, 2015-06-18 A Practical Guide to Geometric Regulation for Distributed Parameter Systems provides an introduction to geometric control design methodologies for asymptotic tracking and disturbance rejection of infinite dimensional systems The book also introduces several new control algorithms inspired by geometric invariance and asymptotic attraction for a wide range of dynamical control systems The first part of the book is devoted to regulation of linear systems beginning with the mathematical setup general theory and solution strategy for regulation problems with bounded input and output operators The book then considers the more interesting case of unbounded control and sensing Mathematically this case is more complicated and general theorems in this area have become available only recently The authors also provide a collection of interesting linear regulation examples from physics and engineering The second part focuses on regulation for nonlinear systems It begins with a discussion of theoretical results characterizing solvability of nonlinear regulator problems with bounded input and output operators The book progresses to problems for which the geometric theory based on center

manifolds does not directly apply The authors show how the idea of attractive invariance can be used to solve a series of increasingly complex regulation problems The book concludes with the solutions of challenging nonlinear regulation examples from physics and engineering

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