Thin Layer Chromatography A Laboratory Handbook

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A Laboratory Handbook Springer Science & Business Media
Thin layer chromatography (TLC) is well suited for performing enantioseparations for research as well as larger-scale applications. A fast, inexpensive, and versatile separation technique, there are many practical considerations that contribute to its effectiveness. Thin Layer Chromatography in Chiral Separations and Analysis is the first book to focus solely on the theory, capabilities, and applications of TLC for direct and indirect enantioseparations. The first part of the book examines the fundamental principles of chirality and TLC. It describes the necessary materials, laboratory equipment, procedures, and strategies for the separation, quantification, isolation, and analysis of chiral compounds. The second part evaluates the real-world enantioseparations and densitometric analyses. Emphasizing pharmaceutical applications, the book discusses chiral separation mechanisms and methods for analyzing the chiral purity of diastereoisomers, amino acids, beta-blockers, and NSAIDS. Topics also include commercial stationary phases and chiral modifiers of mobile phases. Thin Layer Chromatography in Chiral Separations and Analysis presents a unified perspective of theory and experimental details underlying the collective developments in the field. The book offers scientists in a variety of disciplines and levels of expertise a complete guide to understanding the current and potential applications of chiral TLC.
Wiley-VCH
High-Performance Thin-Layer Chromatography for the Analysis of Medicinal Plants presents the theoretical and technical information needed to perform reliable and reproducible high-performance thin-layer chromatography (HPTLC) to establish the identity, purity, quality, and stability of raw materials, extracts, and finished botanical products. The text provides a complete overview of the technique and common applications of HPTLC in herbal analysis. It will help the analyst answer questions such as: Am I paying for a high-quality material, but getting a cheap adulterant? Is this raw material worth its price? Does this product comply with the claim on its label? Has the composition of this product changed after being on the shelf for more than a year? Practical examples provided by renowned experts help the reader gain a firm understanding of HPTLC methodologies. More than 300 full-color illustrations aid comprehension of complex concepts, and easy-to-reference text boxes provide summaries of key information.This book is essential for analysts, quality assurance professionals, and regulators seeking a comprehensive text on how to use HPTLC to determine whether botanicals comply with current, good manufacturing practices. It will also benefit students in pharmacognosy, phytopharmacy, pharmaceutical biology, and analytical chemistry programs.
Thin-Layer Chromatography, Thin-Layer Chromatography: Reagents and Detection Methods CRC Press
The present edited book is the presentation of 18 in-depth national and international contributions from eminent professors, scientists and instrumental chemists from educational institutes, research organizations and industries providing their views on their experience, handling, observation and research outputs on HPTLC, a multi-dimensional instrumentation. The book describes the recent advancements made on TLC which have revolutionized and transformed it into a modern instrumental technique HPTLC. The book addresses different chapters on HPTLC fundamentals: principle, theory, understanding; instrumentation: implementation, optimization, validation, automation and qualitative and quantitative analysis; applications: phytochemical

analysis, biomedical analysis, herbal drug quantification, analytical analysis, finger print analysis and potential for hyphenation: HPTLC future to combinatorial approach, HPTLC-MS, HPTLC-FTIR and HPTLC-Scanning Diode Laser. The chapters in the book have been designed in such away that the reader follows each step of the HPTLC in logical order.

Thin Layer Chromatography Royal Society of Chemistry

This series of laboratory handbooks provides a wealth of experience and practical advice to the experimentalist. From reviews on 'Thin-Layer Chromatography: Reagents and Detection Methods, Volume 1a': 'This book forms part of what will...be one of the most important contributions to the literature of thin layer chromatography...if I were contemplating the purchase of only one book on TLC this year, it would be this one.' Journal of Planar Chromatography 'Detection methods are not only described in all technical details but also provided with chemical background information and sample references to the literature. What is best is that the procedures have been tested in the authors' laboratories and that their comments, such as helpful hints and precautions are included...All practitioners of TLC will greatly profit from having this reference and handbook at their disposal. The introductory material will also be of value to students of analytical chemistry and beginners in TLC laboratory practice.' Journal of Chromatography

A Series of Articles Reprinted from 'Laboratory Practice', the Monthly Journal Devoted to Laboratory Research, Control and Teaching Elsevier

Thin-layer chromatography (TLC) has become a common and much favoured separation technique in laboratories in widely varied fields in recent years. Much of the credit for the introduction of this technique into analytical practice at the l 2 end of the 1950s is due to E. Stahl • • This method is simple and is characterized by high separation ability and sufficient sensitivity3; however, some analysts feel that it has passed the peak in its development and will gradually be replaced by the more modem high-performance liquid chromatography (HPLC). This is undoubtedly a very important analytical technique utilizing the specific separa tion properties of a large number of sorbents and the possibility of regulating 4 the flow-rate of the mobile phase by adjusting the pressure • Standardization of the experimental conditions is simpler in HPLC than in TLC, where the activity of the sorbent and flow-rate of the eitlent in the thin layer depend markedly on the relative humidity of the laboratory atmosphere and on the composition of the gaseous phase in the elution chamber. In addition, systems for quantitative detection of the separated ~ones are better developed for HPLC than for classical TLC, where, until recently, cumbersome and often even insufficiently reproducible chemical or gravimetric analysis of the extracts of scraped-off spots or densitometry of the separated zones, located first by pyrolysis or reaction s with suitable detection agents, were the predominant determination methods .

A Laboratory Handbook Thieme

In the study and conservation of art and artifacts, natural organic materials are frequently encountered in components such as coatings, binders, and adhesives. The identification of these materials is often crucial to the attempt to characterize the technologies employed by artists or craftspeople, understand the processes and causes of deterioration, and plan appropriate conservation treatments. Yet the limited resources of many conservation laboratories put many analysis techniques beyond their reach. Thin-layer chromatography can help fill this gap. The volume consists of a handbook, protocols, and guide to reference materials. The handbook serves as a primer for the basic application of thin-layer chromatography to the analysis of binding media, adhesives, and coatings found on cultural objects; the protocols provide step-by-step instructions for the laboratory procedures involved in typical analyses; and the guide to reference materials aids in the understanding of the types of materials and documentation needed for accurate analyses by thin-layer chromatography.

Thin-layer Chromatography . A Laboratory Handbook. Translated by M. R. F. Ashworth. With 241 Figures and 3 Plates in Color Getty Publications

The historical development of the method. Adsorbents for TLC. Apparatus and general techniques in TLC. Special techniques in TLC. Thin-layer electrophoresis. Coupling of gas- and thin-layer chromatography. Documentation of thin-layer chromatograms. Quantitative evaluation of thin-layer chromatograms. Isotope technique. Terpene derivatives, essential oils, balsams and resins. Vitamins, includins carotenoids, chlorophylis and biologically active quinones. TLC of steroids and related compounds. Aliphatic lipids. Alkaloids. Simple indole derivatives and plant growth regulators. Amines and tar bases. Synthetic pharmaceutical products. Antibiotics. TLC in clinical diagnosis. Synthetic colouring materials. Foodsttufs and their additives. Synthetic organic products. Hydrophilic plant constituents and their derivatives. Amino acids and derivatives. Nucleic acids and nucleotides. Sugar and derivatives. Inorganic ions. Spray reagents. Conversion tables for Rf into Rm and vice versa. Terms frequently used in thin-layer chromatography.

Thin-Layer Chromatography, Thin-Layer Chromatography: Reagents and Detection Methods John Wiley & Sons

Thin-layer chromatography has become so widely known in the space of a few years that it has proved necessary to gather into book form and thus make generally accessible the experimental material previously only available in isolated publications. As thin-layer chromatography can be used both for organic and inorganic matter as well as on quantities ranging from the nanogram to the microgram, it is impossible for anyone individual to possess sufficient laboratory experience or overall knowledge to produce a practical handbook that will be of real assistance to be ginner and specialist alike. For this reason, an international group was formed, who made it their task to produce the best possible treatise. In view of the present stage of development reached by thin-laycr chromatography, it seems specially apt that the authors should include yet unpublished work of their own. As thin-layer chromatography is used in many different fields in natural science and medicine, the kind of brief description of materials intelligible only to the expert has been avoided. The short guides to the chemical properties of the groups to be separated, their names, and relevant bibliographic details should facilitate introductory studies arid make possible a close acquaintance with the material in hand. It also seemed advisable to give brief details of the analytical classification of material, which is so often necessary. Although the classification used may appear unusual, it is in fact pre-eminently suitable to thin-layer chromatography.

Thin Layer Chromatography: a Series of Articles Reprinte from "Laboratory Practice." Springer

Thin layer chromatography (TLC) is well suited for performing enantioseparations for research as well as larger-scale applications. A fast, inexpensive, and versatile separation technique, there are many practical considerations that contribute to its effectiveness. Thin Layer Chromatography in Chiral Separations and Analysis is the first book to focus solely on the theory, capabilities, and applications of TLC for direct and indirect enantioseparations. The first part of the book examines the fundamental principles of chirality and TLC. It describes the necessary materials, laboratory equipment, procedures, and strategies for the separation, quantification, isolation, and analysis of chiral compounds.

THIN LAYER CHROMATOGRAPHY (SET PRICE OF 34 BOOKS) Springer Science & Business Media

Thin-Layer ChromatographyA Laboratory HandbookSpringer Science & Business MediaThin-Layer ChromatographyA Laboratory HandbookSpringerThin-Layer ChromatographyA Laboratory HandbookSpringer Science & Business Media

Thin-layer Chromatography CRC Press

Thin-layer chromatography (TLC) is a powerful, fast and inexpensive analytical method. It has proven its usefulness in pharmaceutical, food and environmental analysis. This new edition of the practical TLC guide features a completely revised chapter on documentation, now including the use of digital cameras. Selected new sorbents and instruments are also introduced. Why has the prior edition been successful? All steps of the analytical procedure are clearly explained, starting with the choice of a suitable TLC technique and ending with data evaluation and documentation. Special emphasis is put on the proper choice of materials for TLC. Properties and functions of various materials and the TLC equipment are described, covering e. g. precoated layers, solvents and developing chambers, including information on suppliers. Many practical hints for trouble shooting are given. All this is illustrated with numerous coloured figures. How to use TLC in compliance with GLP/GMP regulations is described in detail, including the required documentation. Therefore the reader can very easily compile his own standard operating procedures.

Volume 1b: Physical and Chemical Detection Methods: Activation Reactions, Reagent Sequences, Reagents II Createspace Independent Publishing Platform

Instrumental Thin-Layer Chromatography delivers comprehensive coverage of this separation tool with particular emphasis on how this tool can be used in advanced laboratories and integrated into problem-solving scenarios. Significant improvements in instrumentation have outpaced the development of information resources that describe the latest state-of-the-art and demonstrate the full capabilities of TLC. This book provides a contemporary picture of the fundamentals and practical applications of TLC at a level suitable for the needs of professional scientists with interests in project management where TLC is a common tool. Compact, highly focused chapters convey essential information that defines modern TLC and how it can be effectively implemented in most areas of laboratory science. Numerous figures and tables provide access to material not normally found in a single source yet are required by working scientists. Contributions written by recognized authoritative and visionary experts Focuses on state-of-the-art instrumental thin-layer chromatography and advanced applications across many areas Provides guidance on the analysis of complex, dirty mixtures of compounds Offers a cost-effective analytic technique for laboratories working under strict budgets

A Laboratory Handbook. Transl.by M.R.F. Ashworth. 2d Ed.fully Rev.and Expanded Ellis Horwood

Thin-Layer Chromatography (TLC) is a modern, reliable tool that complements other chromatographic techniques. This book provides a practical guide to the basic principles, procedures and pitfalls on the practical application of TLC. Thin Layer Chromatography: A Modern Practical Approach offers a sequence of chapters following the steps of the technique as the chromatographer would follow them. The chapters provide a choice of sorbent best suited to the separation intended, followed by pre-treatment required for the sample, applying the sample to the sorbent layer, development procedure, visualisation and detection, and finally quantification. Imaging and hyphenation techniques are described. The reasons why recommendations are made for specific and more general methods are covered. The book also provides an overview of some recent developments in the field.

Applied Thin-Layer Chromatography Elsevier Science Limited

This book gives a practical introduction to one of the more popular separation techniques. Readers will learn to perform separations and will develop the ability to make an educated guess as to what the conditions will be to separate a new mixture of compounds. The authors provide classes of compound and background theory that quickly develop the skills of the student learning thin layer chromatography. Chapter coverage includes stationary phase, mobile phase, practical techniques, applications, recent developments, and advantages and disadvantages of thin layer chromatography. It also includes a bibliography of texts providing additional separations for further study.· Stationary Phase· Mobile Phase· Sample· Practical Techniques· Applications· Recent Developments· Advantages and Disadvantages of Tlc· Self Assessment Questions and Responses · Units of Measurement

The Application of Thin-layer Chromatography in the Clinical Laboratory Wiley-VCH

This series of laboratory handbooks provides a wealth of experience and practical advice to the experimentalist. From reviews on 'Thin-Layer Chromatography: Reagents and Detection Methods, Volume 1a': 'This book forms part of what will...be one of the most important contributions to the literature of thin layer chromatography...if I were contemplating the purchase of only one book on TLC this year, it would be this one.' Journal of Planar Chromatography 'Detection methods are not only described in all technical details but also provided with chemical background information and sample references to the literature. What is best is that the procedures have been tested in the authors' laboratories and that their comments, such as helpful hints and precautions are included...All practitioners of TLC will greatly profit from having this reference and handbook at their disposal. The introductory material will also be of value to students of analytical chemistry and beginners in TLC laboratory practice.' Journal of Chromatography

Dunnschicht-Chromatographie John Wiley & Sons

Used routinely in drug control laboratories, forensic laboratories, and as a research tool, thin layer chromatography (TLC) plays an important role in pharmaceutical drug analyses. It requires less complicated or expensive equipment than other techniques, and has the ability to be performed under field conditions. Filling the need for an up-to-date, complete reference, Thin Layer Chromatography in Drug Analysis covers the most important methods in pharmaceutical applications of TLC, namely, analysis of bulk drug material and pharmaceutical formulations, degradation studies, analysis of biological samples, optimization of the separation of drug classes, and lipophilicity estimation. The book is divided into two parts. Part I is devoted to general topics related to TLC in the context of drug analysis, including the chemical basis of TLC, sample pleparation, the optimization of layers and mobile phases, detection and quantification, analysis of ionic compounds, and separation and analysis of chiral substances. The text addresses the newest advances in TLC instrumentation, two-dimensional TLC, quantification by slit scanning densitometry and image analysis, statistical processing of data, and various detection and identification methods. It also describes the use of TLC for solving a key issue in the drug market—the presence of substandard and counterfeit pharmaceutical products. Part II provides an in-depth overview of a wide range of TLC applications for separation and analysis of particular drug groups. Each chapter contains an introduction about the structures and medicinal actions of the described substances and a literature review of their TLC analysis. A useful resource for

chromatographers, pharmacists, analytical chemists, students, and R&D, clinical, and forensic laboratories, this book can be utilized as a manual, reference, and teaching source.

Laboratory Handbook of Paper and Thin-layer Chromatography Springer Science & Business Media

Instrumental Thin-Layer Chromatography delivers comprehensive coverage of this separation tool with particular emphasis on how this tool can be used in advanced laboratories and integrated into problem-solving scenarios. Significant improvements in instrumentation have outpaced the development of information resources that describe the latest state-of-the-art and demonstrate the full capabilities of TLC. This book provides a contemporary picture of the fundamentals and practical applications of TLC at a level suitable for the needs of professional scientists with interests in project management where TLC is a common tool. Compact, highly focused chapters convey essential information that defines modern TLC and how it can be effectively implemented in most areas of laboratory science. Numerous figures and tables provide access to material not normally found in a single source yet are required by working scientists. Contributions written by recognized authoritative and visionary experts Focuses on state-of-the-art instrumental thin-layer chromatography and advanced applications across many areas Provides guidance on the analysis of complex, dirty mixtures of compounds Offers a cost-effective analytic technique for laboratories working under strict budgets

Thin Layer Chromatography in Chiral Separations and Analysis Springer Science & Business Media

Volume 1b: Physical and Chemical Detection Methods: Activation Reactions, Reagent Sequences, Reagents II Thin-Layer ChromatographyA Laboratory Handbook

A practical laboratory handbook. Transl. from Russian by I. Schmorak