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Membrane Electrodes in Drug-Substances Analysis Elsevier *Membrane Electrodes in Drug-Substances Analysis* discusses the analytical control of drugs using ion-selective membrane electrodes. This book is divided into three parts, comprised of 18 chapters organized according to the topics they cover. The first part covers the general aspects of membrane electrodes, which includes topics such as theoretical considerations and the basic characteristics of membrane electrodes. Part II deals with the general methods of analysis using membrane electrodes, and Part III tackles the determination of drug-substances. This book will be of great use to researchers and professionals engaged in drug research. **Membrane Electrodes in Drug-substances Analysis Pergamon Ion-Selective Electrode Reviews** Elsevier *Ion-Selective Electrode Reviews, Volume 6* covers new fields of application for coated-wire ion-selective electrodes (ISEs). The book discusses the practical suggestions for testing automatic equipment based on ISE; the amperometric and potentiometric determinations with immobilized enzymes and microorganisms; and the drug-type substances analysis with membrane electrodes. The text also describes coated-wire ISEs and the in vivo application of ion-sensitive field effect transistors, including a summary of laboratory research and probable future clinical detectors. **Pharmaceutical Applications of Membrane Sensors** CRC Press A one-of-a-kind book discussing drug-membrane sensors in pharmaceutical analysis *Pharmaceutical Applications of Membrane Sensors* is the first book to deal with the theory of drug-membrane sensors, as well as applications of such devices in pharmaceutical analysis. The book contains three main parts. The three major sections of the book cover the design and principles of membrane drug sensors, the use of membrane sensors in the analysis of pharmaceuticals, and various aspects of drug release monitoring by membrane sensors. Detailed analytical methods for more than 400 organic pharmaceuticals assayed by membrane sensor techniques are presented. *Pharmaceutical Applications of Membrane Sensors* will be a valuable reference for specialists in analytical and pharmaceutical chemistry, electroanalytical chemistry, medicine, pharmaceutical sciences, and pharmacology. **Electrochemical Sensors in Bioanalysis** CRC Press "Covers the most recent methods and materials for the construction, validation, analysis, and design of electrochemical sensors for bioanalytical, clinical, and pharmaceutical applications--emphasizing the latest classes of enantioselective electrochemical sensors as well as electrochemical sensors for in vivo and in vitro diagnosis, for DNA assay and HIV detection, and as detectors in flow systems. Contains current techniques for the assay or biochemical assay of biological fluids and pharmaceutical compounds." **Ion-Selective Electrode Reviews Volume 7** Elsevier *Ion-Selective Electrode Reviews, Volume 7* is a collection of papers that covers the applications of electrochemical sensors, along with the versatility of ion-selective electrodes. The coverage of the text includes solid contact in membrane ion-selective electrodes; immobilized enzyme probes for determining inhibitors; potentiometric titrations based on ion-pair formation; and application of ion-selective electrodes in soil science, kinetics, and kinetic analysis. The text will be of great use to chemists and chemical engineers. **TRAC: Trends in Analytical Chemistry Volume 10** Elsevier *TRAC: Trends in Analytical Chemistry, Volume 10* presents relevant topics in global analytical chemistry research. This book discusses the potential of flow injection analysis for water quality monitoring. Organized into 27 parts encompassing 67 chapters, this book begins with an overview of the amount of published information on analytical chemistry research. This text then examines the analytical technique in the electrophoretic separations in narrow bore tubes, which is capable of rapid, high-resolution separations of water-soluble components in small sample volumes. Other chapters consider the application of polynomial and B-spline interpolation to the description of cyclic voltammetric features. This book discusses as well the methods used to investigate the properties of ceramic high-transition-temperature superconductors. The final chapter deals with the importance of monitoring and protecting the environment based on measurement campaigns. This book is a valuable resource for analytical chemists, environmental chemists, and biochemists. Pharmacologists, scientists, students, researcher workers, and other practitioners will also find this book useful. **Electrochemical Methods in Soil and Water Research** Elsevier This book deals with the principles and practices of electrochemical methods as applied to soil and water research, particularly those that can be carried out in the field. Beginning with the basis of potentiometric methods, including electrode potential, principles of potentiometric methods, reference electrodes, liquid-junction potential and characteristics of ion-selective electrodes, the author then proceeds to describe the properties and applications of various types of potentiometric electrodes, including glass, solid-state membrane, liquid-state membrane, oxidation-reduction and gas sensors. A special chapter devoted to commonly encountered problems will aid readers not familiar with potentiometric methods. Voltammetric methods, conductometric methods and electrochemical instruments are also discussed. **Electropharmacology** CRC Press This extraordinary book covers the extremely broad subject of electropharmacology-defined here as the application of principles and methods of electrochemistry to biological topics associated with the action of drugs. It focuses on the physical principles of the movement of electrical charges across interfaces in pharmacological phenomena. It also covers drugs and the electrical procedures which modify a natural process having an electrochemical basis or component. This outstanding report studies the pharmacologically important properties and effects by electrochemical methods, the electrochemical alternatives or adjuncts to drug therapy, and the pharmacology involved. Easy to read and understand, this is an ideal reference for all researchers and practitioners of pharmacology and related fields. **Electroanalysis with Carbon Paste Electrodes** CRC Press Because of their simple preparation and low expense, carbon pastes and carbon paste electrodes are widely used in a myriad of instrumental measurements. With an emphasis on practical applications, *Electroanalysis with Carbon Paste Electrodes* provides a comprehensive overview of carbon paste electrodes. The text offers a comprehensive and unprecedentedly wide insight into the realm of the carbon paste material, culminating with a systematic presentation of all the methods and procedures applicable to the determination of a myriad of inorganic and organic substances when employing the individual types and variants of carbon paste-based electrodes, sensors, and detectors. With a lengthy list of up-to-date references, this handy reference source includes many typical as well as specific experimental data, serving as a practical guide for daily laboratory work. More specifically, this monograph, the first of its kind, contains: All types of carbon pastes in contemporary classification ,with particular emphasis on chemically and biologically modified configurations, or newly propagated mixtures made of alternate components Details on the preparation of carbon pastes, with a number of practical hints and recommendations, including some hitherto unreported approaches Practical guidance for experimental laboratory work on the preparation and characterization of carbon pastes, including guides on the testing of newly made mixtures Individual methods and procedures for the determination of hundreds of various substances in a complete survey of applications Nearly 3300 original references presented as full-text citations **Current Catalog** First multi-year cumulation covers six years: 1965-70. **National Library of Medicine Current Catalog Cumulative listing Practical Pharmaceutical Chemistry Part II Fourth Edition A&C Black** This Fourth Edition has been thoroughly revised and updated to take account of international developments in pharmaceutical chemistry and to maintain the position of *Practical Pharmaceutical Chemistry* as the leading University textbook in the field of pharmaceutical analysis and quality control. Part 2 deals with physical techniques of analysis for more advanced courses. It gives a broad coverage of the most widely used techniques in quantitative chromatography. The treatment of spectroscopy and radiopharmaceuticals has also been increased. There are additional chapters on the contribution and role of physical methods of analysis in the various stages of drug development; and a series of workshop-style exercises, illustrating the application of spectroscopic techniques in structural elucidation and verification of identity. Users of the two volumes will welcome the internationalisation of the text, with examples based on drugs and dosage forms that are widespread and in common use in human medicine in Britain, continental Europe and North America. Additionally there is some reference to veterinary pharmaceuticals where they provide appropriate examples. **Prof. of Drug Substances, Excipients and Related Methodology** Academic Press *Profiles of Drug Substances, Excipients, and Related Methodology, Volume 46* contains comprehensive profiles of five drug compounds: Darunavir, Bisoprolol, Betaxolol, Rabeprazole and Irbesartan. In addition, the work contains a chapter reviewing Bioassay Methods and Their Applications in Herbal Drug Research. The comprehensive reviews in the book cover all aspects of drug development and the formulation of drugs, helping readers understand how the drug development community remains essential to all phases of pharmaceutical development. In addition, this work answers why such profiles are of immeasurable importance to workers in the field. The scope of the Profiles series encompasses review articles and database compilations that fall within one or more of the following five broad categories: Physical Profiles of Drug Substances and Excipients, Analytical Profiles of Drug Substances and Excipients, ADME Profiles of Drug Substances and Excipients, Methodology Related to the Characterization of Drug Substances and Excipients, and Methods of Chemical Synthesis. Contains contributions from leading authorities Presents an excellent overview on the physical, chemical and biomedical properties of some regularly prescribed drugs Includes a cumulative index in each volume **Nanomedicine for Drug Delivery and Therapeutics** John Wiley & Sons This book describes a broad area of nanomedicine which involves mainly applications, diseases, and diagnostics. The comprehensive coverage provides researchers, academics, and health specialists with a great tool, that includes techniques applicable to various uses. **Communications de la Faculte des sciences de l'Université d'Ankara Chimie Ion-Selective Electrode Reviews** Pergamon Press **Ion-selective Electrode Reviews Potentiometric Water Analysis** Wiley-Blackwell *Potentiometric Water Analysis Second Edition* Derek Midgley and Kenneth Torrance, National Power plc, Technology and Environmental Centre, Leatherhead, Surrey, UK This volume is a thoroughly revised and updated version of the very successful first edition. It provides, in one single volume, a comprehensive survey of the theoretical and practical aspects of potentiometry and ion-selective electrodes applied to the analysis of water. The first part of the book describes the basic theory of electrodes, the statistical treatment of results, titrimetric methods and general guidance on procedures. Useful information is given on the types of electrodes available, together with the apparatus required for laboratory and industrial use. For this second edition, the authors include details on microprocessor-based instruments, new electrodes and techniques that have recently been developed, as well as updating the variations on established procedures and their performance characteristics. The second part of the book gives detailed analytical methods for identifying a variety of determinands. Worked examples with discussions of sources of error and likely accuracy are also included. The book is designed to give sufficiently detailed procedures so that the reader can use the methods without recourse to the primary literature. With its emphasis on the practical aspects of potentiometric water analysis, this book will be a valuable tool for analysts working in the field. **Kidney Disease and Nephrology Index Publications of the National Bureau of Standards, 1979 Catalog A Compilation of Abstracts and Key Word and Author Indexes Publications of the National Institute of Standards and Technology ... Catalog Profiles of Drug Substances, Excipients and Related Methodology** Academic Press *Volumes in this widely revered series present comprehensive reviews of drug substances and additional materials, with critical review chapters that summarize information related to the characterization of drug substances and excipients. This organizational structure meets the needs of the pharmaceutical community and allows for the development of a timely vehicle for publishing review materials on this topic. The scope of the Profiles series encompasses review articles and database compilations that fall within one of the following six broad categories: Physical profiles of drug substances and excipients; Analytical profiles of drug substances and excipients; Drug metabolism and pharmacokinetic profiles of drug substances and excipients; Methodology related to the characterization of drug substances and excipients; Methods of chemical synthesis; and Reviews of the uses and applications for individual drug substances, classes of drug substances, or excipients. * Presents comprehensive reviews covering all aspects of drug development and formulation of drugs * Profiles creatine monohydrate and dexfenadine hydrochloride, as well as five others * Meets the information needs of the drug development community* **Advanced Instrumental Methods of Chemical Analysis** Ellis Horwood Limited **NBS Special Publication Publications Ion-Selective Electrodes in Analytical Chemistry** Springer Science & Business Media We continue in this second volume the plan evident in the first; i.e., of presenting a number of well-rounded up-to-date reviews of important developments in the exciting field of ion-selective electrodes in analytical chemistry. In this volume, in addition to the exciting applications of ISE'S to biochemistry systems represented by the description of enzyme electrodes, there is featured the most recent development in ISE'S, namely, the joining of the electrochemical and solid state expertise, resulting in CHEMFETS. The scholarly survey of the current status of ISE'S will undoubtedly be welcomed by all workers in the field. Tucson, Arizona Henry Freiser vii Contents Chapter 1 Potentiometric Enzyme Methods Robert K. Kobos 1. Introduction 1 2. Soluble Enzyme Systems . . . 5 2.1. Substrate Determinations 5 2.2. Enzyme Determinations . 13 2.3. Inhibitor Determinations. 18 3. Immobilized Enzyme Systems . 19 3.1. Methods of Immobilization. 19 3.2. Characteristics of Immobilized Enzymes 23 3.3. Analytical Applications with Ion-Selective Electrodes 23 4. Enzyme Electrodes 31 4.1. Urea Electrodes 35 4.2. Amygdalin Electrodes 39 4.3. Glucose Electrodes . 40 4.4. Penicillin Electrodes 40 4.5. Amino Acid Electrodes 41 4.6. Nucleotide Electrodes 46 4.7. Uric Acid Electrode 47 4.8. Creatinine Electrode 48 4.9. Acetylcholine Electrodes. 4.10. D-Gluconate Electrode 49 4.11. Lactate Electrode 49 4.12. Inhibitor Determination 50 4.13. Substrate Electrodes 50 4.14. Current Trends **Selective Electrode Reviews Vibrational Spectroscopy Applications in Biomedical,**

Pharmaceutical and Food Sciences Elsevier *Vibrational Spectroscopy Applications in Biomedical, Pharmaceutical and Food Sciences* synthesizes the latest research on the applications of vibrational spectroscopy in biomedical, pharmaceutical and food analysis. Suitable for graduate-level students as well as experienced researchers in academia and industry, this book is organized into five distinct sections. The first deals with the fundamentals of vibrational spectroscopy, with the second presenting the most important sampling methodology used for infrared and Raman spectroscopy in various fields of interest. Since spectroscopy is the study of the interaction of electromagnetic radiation with matter, this section deals with the characteristics, properties and absorption of electromagnetic radiation. Final sections describe the analytical studies performed all over the world in biomedical, pharmaceutical and in the food sciences. Presents a critical discussion of many of the applications of vibrational spectroscopy. Covers details of the analytical methodologies used in pharmaceutical and biomedical applications. Discusses the latest developments in pharmaceutical and biomedical analysis of both small and large molecules.

Pharmaceutical Applications of Membrane Sensors CRC Press A one-of-a-kind book discussing drug-membrane sensors in pharmaceutical analysis. *Pharmaceutical Applications of Membrane Sensors* is the first book to deal with the theory of drug-membrane sensors, as well as applications of such devices in pharmaceutical analysis. The book contains three main parts. The three major sections of the book cover the design and principles of membrane drug sensors, the use of membrane sensors in the analysis of pharmaceuticals, and various aspects of drug release monitoring by membrane sensors. Detailed analytical methods for more than 400 organic pharmaceuticals assayed by membrane sensor techniques are presented. *Pharmaceutical Applications of Membrane Sensors* will be a valuable reference for specialists in analytical and pharmaceutical chemistry, electroanalytical chemistry, medicine, pharmaceutical sciences, and pharmacology.

Profiles of Drug Substances, Excipients, and Related Methodology Academic Press *Profiles of Drug Substances, Excipients, and Related Methodology, Volume 42* presents comprehensive reviews of drug substances and additional materials, with critical review chapters that summarize information related to the characterization of drug substances and excipients, thus meeting the needs of the pharmaceutical community and allowing for the development of a timely vehicle for publishing review materials on the topic. This latest release covers a variety of substances, including Cinacalcet Hydrochloride, Clenbuterol Hydrochloride, Gliclazide, Lomefloxacin, Olmesartan, Propranolol, and Tolterodine Tartrate. The scope of the Profiles series encompasses review articles and database compilations that fall within one of the following six broad categories, Physical profiles of drug substances and excipients, Analytical profiles of drug substances and excipients, Drug metabolism and pharmacokinetic profiles of drug substances and excipients, Methodology related to the characterization of drug substances and excipients, Methods of chemical synthesis, and Reviews of the uses and applications for individual drug substances, classes of drug substances, or excipients. Contains contributions from leading authorities. Informs and updates on all the latest developments in the field.

Cumulated Index Medicus Applications of Ion-selective Membrane Electrodes in Organic Analysis Ellis Horwood **Analytics of dissolution testing of products containing nanosized drugs with a view to predicting plasma profiles** Cuvillier Verlag The oral bioavailability of a drug substance is strongly related to its aqueous solubility. Only complete dissolution during the GI-passage can maintain an optimal bioavailability. Poor aqueous drug solubility results, according to the Nernst-Brunner equation into a slow dissolution rate, sometimes too slow for complete dissolution in the GI tract. The dissolution rate increases with decreasing particle size and therefore increasing surface area of the drug particles. In consequence, micronization of the drug is applied to increase oral bioavailability, but often meets with modest success. Recently developed techniques were applied to decrease the particle size into the nanometer range. For some substances, pharmacokinetic parameters could be influenced decisively, e.g. the obviation of a food effect for the drugs aprepitant and fenofibrate. The assessment of a dosage form is investigated by dissolution testing. For a reasonable assessment of such tests, a separation of solid and liquids has to be ensured within an appropriate time frame. For particle sizes of about 150 nm it appears questionable whether such separation can be succeeded by classical techniques, e.g. the use of syringe filters with a pore size of 0.45 μm . The aims of this thesis were to investigate the suitability of various analytical techniques in analysis of dissolution tests containing nanosized drug substance. Furthermore, a suitable analytical tool is applied to establish an *in vitro* - *in vivo* correlation of the nanosized drug fenofibrate. At first, several techniques were investigated in theory to assess their ability to ensure a rapid and complete separation of solids and liquids. The classical dialysis, turbidity measurement and UV-measurement via fiber optics were excluded from further investigation due to various reasons, e.g. the speed of separation for dialysis. The asymmetrical flow field-flow fractionation appeared to be a promising tool, but lack of equipment precluded further investigation. The ultrasonic resonance technology (ResoScan), the microdialysis and the use of centrifugal filter devices have shown to be inappropriate for the analytics of nanosized drugs in dissolution test. The use of syringe filters with various pore sizes and the ionselective electrode (ISE) was promising, so these techniques were examined more intensively. The syringe filters with various filter pore sizes were investigated for their ability to hold back colloidal drug. Fenofibrate was chosen as model drug, since this is commercially available both as micronized and nanosized formulation (Lipidil TerR and Lipidil 145 ONER), enabling direct comparison. The experiments with micronized fenofibrate which contains little or no colloidal fenofibrate yielded similar dissolution profiles, irrespective of filter pore size; f_2 was always greater than 65, indicating less than 5% difference between the dissolution profiles in any medium. Using a pore size of 0.1 μm or less, the maximum concentration of drug achieved in solution from the nanosized formulation was commensurate with the saturation solubility of fenofibrate in all tested media. Filtration with a pore size of 0.2 μm or 0.45 μm generated concentrations exceeding the saturation solubility. These results, in combination with higher standard deviations of the analytical results, indicate that the apparent "supersaturation" is caused by colloidal fenofibrate, which is too fine to be held back by these filters. The f_2 -value of less than 50 when comparing the profiles obtained from 0.1 μm and 0.2 μm filter pore size indicates that the choice of filter pore size is crucial to the interpretation of the dissolution profiles. To separate nanosized drug from molecularly dissolved fenofibrate in Lipidil 145 ONER, a filter pore size of 0.1 μm or less appears to be appropriate. It was observed that the experimental increase of dissolution rate is not congruent with common hypothesis regarding the boundary layer h for decreasing particle sizes and subsequent application of the Nernst-Brunner equation. The initial dissolution rates of both formulations were investigated by using a filter pore size of 0.1 μm . The results were utilized in an *in silico* model (STELLAc) to correlate the *in vitro* results with *in vivo* data (Model A). In the preprandial state a good correlation was established for the micronized fenofibrate, while for the nanosized fenofibrate the plasma levels were overpredicted. The model was expanded to investigate the impact of an absorption step at the intestinal membrane on the *in vitro* - *in vivo* correlation. It was found that even a minor deceleration of absorption results in varied plasma profiles caused by a lagged appearance of drug in the blood. For both formulations the rate determining step was identified: When changing from the micronized to the nanosized formulation, the rate-determining step for absorption may change from completely dissolution-controlled to at least partly permeation-controlled in the fasted state. In the fed state, gastric emptying appears to be rate-determining for absorption of fenofibrate from both the micronized and the nanosized formulation. Another technique appears to be suitable for analysis of nanosized drugs in dissolution testing. The ion-selective electrode (ISE) is a recently developed analytical system measuring the changes of the electrochemical potential in solutions. A transformation via the Nikolski - Eisenmann equation results into the concentration of the respective drug in solution. Since only dissolved drug is detected, obviating the need for separation of dissolved from undissolved drug, this system appears to be very promising in the analytics of nanocrystalline drugs. Diphenhydramine_HCl was chosen as model substance for the ISE studies. It was the goal of investigation to test compatibility of the ISE with complex media, e.g. all biorelevant dissolution media. This is done in advance of application of the ISE in these media for nanocrystalline drug substance. The results were compared to manual sampling, filtration and subsequent HPLC-UV analysis. The results demonstrate that the ion-selective electrode is suitable for measurements of diphenhydramine HCl in fasted state biorelevant media (FaSSGF, FaSSiF, FaSSiF-V2) as both a stand-alone system (Method A) and in conjunction with a single point conventional assay (Method B). The results acquired are similar to those obtained by manual sampling and subsequent HPLC-UV analysis. The ISE also delivers satisfactory results in a milk-based medium (FeSSGF), in which it has distinct advantages over manual sampling with HPLC-UV analysis by obviating the need for sample preparation. The application of the ISE in FeSSiF type media will need further study. Finally, as an on-line technology, ISE offers more efficient generation of dissolution profiles than conventional sample-based methods.

Bioinstrumentation Research, Developments, and Applications Butterworth-Heinemann Focusing on the rapidly changing fields of modern biotechnology and advanced electronics, this reference text describes novel biotechnology-based electronic sensors, particularly those used for detection of very low levels of chemical and biological moieties. In contrast to traditional systems in which an instrument is used simply for observation, the bioinstrumentation described provides for direct assay and read-out information. Annotation copyrighted by Book News, Inc., Portland, OR **Journal of the Chemical Society Faraday transactions. Physical chemistry in condensed phases. I Steroid Analysis** Springer Science & Business Media The second edition of this handbook concentrates on the analysis of steroids in biological fluids. It offers analysis of low levels of steroid analytes in biological fluids. This new edition also provides an extra chapter on pharmaceutical aspects of steroid analysis. Coverage details spectroscopic and other methods, including UV and IR absorption spectroscopy, NMR spectroscopy, mass spectrometry, X-ray diffraction, chromatography and immunoassay of steroids.

The Publishers' Trade List Annual Publications of the National Bureau of Standards ... Catalog Quantitative Trace Analysis of Biological Materials Principles and Methods for Determination of Trace Elements and Trace Amounts of Some Macroelements Elsevier Science Limited The understanding of the functions of trace elements in metabolism, whether associated with microorganisms, plants or animals, has advanced considerably during the last twenty years. There are two main aspects of the importance of trace elements in biological materials: first, their toxic effects and secondly, the essential nature of some of the elements for normal growth and health. Research in trace elements and their essential role in biological processes has advanced through several stages, necessitating more and more effective methods of determination. Despite the marked improvements in methods of trace analysis during these twenty years, the ever increasing need for higher sensitivity to meet new demands has meant the greater need, not only for improving the limits of detection, but also for new standard reference materials, better sampling, better sample handling and better design of trace and ultra-trace analysis laboratories. This book focusses on all areas of trace element determination with detailed discussion on all major methods of analysis. Additionally, the determination of concentrations of major toxic and essential trace elements is discussed at length.