Pharmaceutical Inhalation Aerosol Technology Second Edition Drugs And The Pharmaceutical Sciences

This new edition brings you up-to-date on the role of pharmaceutics and its future paradigms in the design of medicines. Contributions from over 30 international thought leaders cover the core disciplines of pharmaceutics and the impact of biotechnology, gene therapy, and cell therapy on current findings. Modern Pharmaceutics helps you stay current

During the last two decades, the pharmaceutical industry has been under pressure to reduce development costs and the time needed to bring drugs to market in order to maximize return on investment and bring treatments to patients sooner. To meet these ends, pharmaceutical scientists working in the differing areas of pharmacy, pharmaceutics, and phar

Metered Dose Inhaler Technology explores the technologies of pressurized metered dose inhalation (MDI) delivery systems and provides practical, easy-to-use guidance to effective product formulation. With contributions from an international panel of authors, the book addresses the global phase-out of chlorofluorocarbon chemicals (CFCs), the generation of propellant systems to replace them, and their associated new medications and therapies. Topics include the manufacture of metered dose inhalers, particle size analysis in inhalation therapy, development and testing, pharmcokinetics and metabolism of propellants, toxicology, and more.

This source expertly examines the discovery, biological structure, control, and continued clarification of endotoxin from a parenteral manufacturing perspective, with in-depth discussion of state-of-the-art technologies involving Limulus amebocyte lysate (LAL) such as assay development, automation, depyrogenation.

Completely revised and expanded, this Third Edition contains the knowledge necessary to apply endotoxin testing in the increasingly complex pharmaceutical environment, featuring sections detailing the latest information regarding clinical advances, regulation standards, and validation procedures for computerized kinetic tests.

Technology and Applications

Properties, Behavior, and Measurement of Airborne Particles

The Science and Practice of Pharmacy

Cellulose Chemistry and Technology

Aerosol Technology

With the advent of analytical techniques and capabilities to measure particle sizes in nanometer ranges, there has been tremendous interest in the use of nanoparticles for more efficient methods of drug delivery. Nanoparticulate Drug Delivery Systems addresses the scientific methodologies, formulation, processing, applications, recent trends, and e

The source Dermal Absorption and Toxicity Assessment supplies a state-of-the-art overview of the dermal absorption process, and is divided into six well organized sections. Written by internationally recognized experts in the field, this Second Edition is a complete revised and updated text, covering the wide range of methods used to assess skin ab

The #1 guide to aerosol science and technology -now better than ever Since 1982, Aerosol Technology has been the text of choice among students and professionals who need to acquire a thorough working knowledge of modern aerosol theory and applications. Now revised to reflect the considerable advances that have been made over the past seventeen years across a broad spectrum of aerosol-related application areas - from occupational hygiene and biomedical technology to microelectronics and pollution control -this new edition includes: * A chapter on bioaerosols * New sections on resuspension, transport losses, respiratory deposition models, and fractal characterization of particles * Expanded coverage of atmospheric aerosols, including background aerosols and urban aerosols * A section on the impact of aerosols on global warming and ozone depletion. Aerosol Technology, Second Edition also features dozens of new, fully worked examples drawn from a wide range of industrial and research settings, plus new chapter-end practice problems to help readers master the material quickly.

Following its successful predecessor, this book covers the fundamentals, delivery routes and vehicles, and practical applications of drug delivery. In the 2nd edition, almost all chapters from the previous are retained and updated and several new chapters added to make a more complete resource and reference. • Helps readers understand progress in drug delivery research and applications • Updates and expands coverage to reflect advances in materials for delivery vehicles, drug delivery approaches, and therapeutics • Covers recent developments including transdermal and mucosal delivery, lymphatic system delivery, theranostics • Adds new chapters on nanoparticles, controlled drug release systems, theranostics, protein and peptide drugs, and biologics delivery

Measurement, Dosimetry, and Health Effects, Second Edition

Pharmaceutical Inhalation Aerosol Technology, Second Edition

Dermal Absorption and Toxicity Assessment

Aerosol Science

An Introduction

Pharmaceutical Inhalation Aerosol Technology, Third Edition

Revised to ensure GMP compliance, this text examines US laws affecting domestic and multinational pharmaceutical manufacturing. It recommends practical ways to interpret and comply with FDA CGMP regulations while meeting the goals of a comprehensive controls system to preserve product integrity.

The over-riding premise for biotechnology in this book is bringing novel products to market to substantially advance patient care and disease mitigation. Biotechnology, over its relatively brief existence of 40 years, has experienced a mercurial growth. The vast educational need for biotechnology information in this rapidly burgeoning field is a basic rationale here. However a more prominent underpinning is that, bringing biotech products to market for patient care involves success in the following four areas of engagement simultaneously - scientific advances for healthcare technologies, novel and varied products for untreated diseases, regulatory authorities, and biotech companies. Features Comprehensive coverage of biotechnology science topics used in development and manufacturing Addresses all the scientific technologies within biotechnology responsible for products on the market and the pipeline Presents business issues such as marketing and sales of the products, as well as companies engaged, and how biotech business has evolved

The Art and Science of Dermal Formulation Development is a comprehensive guide to the theory and practice of transdermal and topical formulation development, covering preclinical studies, evaluation, and regulatory approval. It enables the reader to understand the opportunities and challenges in developing products and how risks can be mitigated. Over the last 25 years, expertise in this area has declined whilst drug delivery systems for other administration routes have developed significantly. The advantages offered by transdermal and topical drug delivery remain compelling for sectors including the pharmaceutical industry, personal care, and cosmetics. This text addresses the dearth of expertise and discusses how skin can be a route of delivery and the processes in formulation development, but how such an application is very different to that used for oral, IV, and other administration routes. Key Features: Presents a practical guide for both industry and academia Focuses on and draws together the fundamental principles behind transdermal and topical drug delivery Illustrates the practicalities of formulation design using key case studies Gives an understanding of the skin as a route of delivery and how formulation development for such application differs from that for other administration routes

This fully revised and updated third edition of Pharmaceutical Inhalation Aerosol Technology encompasses the scientific and technical foundation for the rationale, design, componentry, assembly and quality performance metrics of therapeutic inhalers in their delivery of pharmaceutical aerosols to treat symptoms or the underlying causes of disease. It focuses on the importance of pharmaceutical engineering as a foundational element of all inhaler products and their application to pulmonary drug delivery. The expanded scope considers previously unaddressed aspects of pharmaceutical inhalation aerosol technology and the patient interface by including aerosol delivery, lung deposition and clearance that are used as measures of effective dose delivery. Key Features: Provides a thoroughly revised and expanded reference with authoritative discussions on the physiologic,pharmacologic, metabolic, molecular, cellular and physicochemical factors, influencing the efficacy and utilization of pharmaceutical aerosols Emphasizes the importance of pharmaceutical engineering as a foundational element of all inhaler products and their application to pulmonary drug delivery Addresses the physics, chemistry and engineering principles while establishing disease relevance Expands the 'technology' focus of the original volumes to address the title more directly Offers an impressive breadth of coverage as well as an international flavour from outstanding editors and contributors

Aqueous Polymeric Coatings for Pharmaceutical Dosage Forms, Third Edition

Metered Dose Inhaler Technology

Controlled Pulmonary Drug Delivery

the Science, the Products, the Government, the Business

Nanoparticulate Drug Delivery Systems

In Vitro-In Vivo Correlation

This contribution book collects reviews and original articles from eminent experts working in the interdisciplinary arena of novel drug delivery systems and their uses. From their direct and recent experience, the readers can achieve a wide vision on the new and ongoing potentialities of different drug delivery systems. Since the advent of analytical techniques and capabilities to measure particle sizes in nanometer ranges, there has been tremendous interest in the use of nanoparticles for more efficient methods of drug delivery. On the other hand, this reference discusses advances in the design, optimization, and adaptation of gene delivery systems for the treatment of cancer, cardiovascular, pulmonary, genetic, and infectious diseases, and considers assessment and review procedures involved in the development of gene-based pharmaceuticals.

With global harmonization of regulatory requirements and quality standards and national and global business consolidations ongoing at a fast pace, pharmaceutical manufacturers, suppliers, contractors, and distributors are impacted by continual change. Offering a wide assortment of policy and guidance document references and interpretations, this Sixth Edition is significantly expanded to reflect the increase of information and changing practices in CGMP regulation and pharmaceutical manufacturing and control practices worldwide. An essential companion for every pharmaceutical professional, this guide is updated and expanded by a team of industry experts, each member with extensive experience in industry or academic settings.

The Mechanics of Inhaled Pharmaceutical Aerosols, An Introduction provides a unique and comprehensive treatment of the mechanics of inhaled pharmaceutical aerosols. The book covers a wide range of topics and many new perspectives are given by drawing on research from a variety of fields. Novel, in-depth expositions of the most common delivery devices are given, including nebulizers, dry powder inhalers and propellant metered dose inhalers. The behaviour of aerosols in the respiratory tract is explained in detail, with complete coverage of the fundamentals of current deposition models. The book begins by providing a comprehensive introduction to aspects of aerosol mechanics that are relevant to inhaled pharmaceutical aerosols. It then gives an exhaustive pedagogical description of the behaviour of evaporating and condensing droplets (both aqueous and propellant-based), an introductory chapter on lung geometry and inhalation patterns, and coverage of relevant aspects of fluid mechanics in the lung. Finally, the book provides invaluable, detailed coverage on the mechanics of common pharmaceutical aerosol delivery systems and deposition in the respiratory tract. Throughout the book are many detailed numerical examples that apply the salient concepts to typical inhaled pharmaceutical aerosols. This book will be of interest to scientists and engineers involved in the research and development of inhaled pharmaceutical aerosol products. Experienced practitioners will find many new perspectives that will greatly enhance their understanding of this complex and rapidly growing field. For those delivering therapeutic agents to the lung, this book is a must-have. Students and academics will find this book an invaluable tool and for newcomers it is a worthy guide to the diverse fields that must be understood to work in the area of inhaled pharmaceutical aerosols.

Combining basic theory, current industrial practice, and useful regulatory aspects in an original overview of pharmaceutical stability, this thoroughly rewritten and enlarged reference/text examines data analysis of the packaged drug's stability, experimental methods for achieving stable marketed products, and the stability principles of drugs in dissolved, dispersed, and solid states.

Pharmaceutical Process Validation, Second Edition

Measurement, Dosimetry, and Health Effects

Endotoxins

The Art and Science of Dermal Formulation Development

Aerosols Handbook

Colloid and Interface Science in Pharmaceutical Research and Development

Inhaled Pharmaceutical Product Development Perspectives: Challenges and Opportunities describes methods and procedures for consideration when developing inhaled pharmaceuticals, while commenting on product development strategies and their suitability to support regulatory submission. It bridges the gap between the aspirations of scientists invested in new technology development and the requirements that must be met for any new product. The book brings together emerging analytical and inhalation technologies, providing perspectives that illuminate formulation and device design, development, regulatory compliance, and practice. Focusing on underlying scientific and technical principles known to be acceptable from the current regulatory perspective, this monograph will remain useful as a high-level guide to inhaled product development for the foreseeable future. Discusses development strategies and best practices in the context of regulatory requirements Written by a broadly qualified expert drawing on the knowledge and critical opinions of key individuals in the field Includes a foreword by Charles G. Thiel

An up-to-date, sequenced approach to drug dosage formulation, design and evaluation. This edition offers new chapters on regulatory aspects of the pharmaceutical industry in the European Union, the pharmaceutical needs of special populations, target-oriented drug delivery systems and more.

Aerosols influence many areas of our daily life. They are at the core of environmental problems such as global warming, photochemical smog and poor air quality. They can also have diverse effects on human health, where exposure occurs in both outdoor and indoor environments. However, aerosols can have beneficial effects too; the delivery of drugs to the lungs, the delivery of fuels for combustion and the production of nanomaterials all rely on aerosols. Advances in particle measurement technologies have made it possible to take advantage of rapid changes in both particle size and concentration. Likewise, aerosols can now be produced in a controlled fashion. Reviewing many technological applications together with the current scientific status of aerosol modelling and measurements, this book includes: • Satellite aerosol remote sensing • The effects of aerosols on climate change • Air pollution and health • Pharmaceutical aerosols and pulmonary drug delivery • Bioaerosols and hospital infections • Particle emissions from vehicles • The safety of emerging nanomaterials • Radioactive aerosols: tracers of atmospheric processes With the importance of this topic brought to the public's attention after the eruption of the Icelandic volcano Eyjafjallajökull, this book provides a timely, concise and accessible overview of the many facets of aerosol science.

This work covers all aspects of the Food and Drug Administration's Good Laboratory Practice relgulations and techniques for implementation. This edition includes general knowledge on computer system validation, details on implementing GIPs in an automated laboratory, a forecast of the flexibility and effectiveness of GLPs in the changing laboratory environment, and a contemporary bibliography with new references.

Biotechnology

A Plan for Total Quality Control

Pharmaceutical Product Development

Bioequivalence Issues

Modified-release Drug Delivery Technology

Generic Drug Product Development

Updated to reflect current good manufacturing practice (CGMP) regulations, this text discusses current concepts in validation. New topics covered include: validation of cleaning systems and computer systems; equipment and water systems validation; and lyophilized and aerosol product validation.

With the rapid growth of the nanotechnology industry, the need to understand the biological effects of aerosol exposure has become increasingly important. Featuring contributions by leading experts in the field, Aerosols Handbook: Measurement, Dosimetry, and Health Effects, Second Edition offers an up-to-date overview of many aspects of aerosols, f

This fully revised edition of Handbook of Pharmaceutical Granulation Technology covers the rapid advances in the science of agglomeration, process control, process modelling, scale-up, emerging particle engineering technologies, along with current regulatory changes presented by some of the prominent scientist and subject matter experts around the globe. Learn from more than 50 global subject matter experts who share their years of experience in areas ranging from drug delivery and pharmaceutical technology to advances in nanotechnology. Every pharmaceutical scientist should own a copy of this fourth edition resource. Key Features: Theoretical discussions covering granulation and engineering perspectives. Covers new advances in expert systems, process modelling and bioavailability Chapters on emerging technologies in particle engineering Updated Current research and developments in granulation technologies

This reference provides a concise overview of the key principles in dose selection and optimization and demonstrates applicability to recent successful new drug applications. Compiling key issues and current research of safety, efficacy, and clinical pharmacology, and PK-PD, this volume critically highlights the multidisciplinary nature of drug development and spans the fields of pharmacokinetics, clinical pharmacology, biostatistics, and experimental medicine.

Good Manufacturing Practices for Pharmaceuticals

Challenges and Opportunities

Dose Optimization in Drug Development

Good Laboratory Practice Regulations

Drug Delivery

Modern Pharmaceutics, Fourth Edition Revised and Expanded

This edition offers new and expanded information on recent developments in stability data analysis, concepts of statistical outliners, bioequivalence studies, problems in sampling and devising limits for product release, covariance analysis and tolerance intervals, multiple endpoints and clinical data analysis, and more. student price which is available upon request from Marcel Dekker.

Highlights the application of freeze-drying to pharmaceuticals-illustrating practical & industry-tested methods of preserving & reactivating delicate biologicals & biochemicals. Discusses the basic principles & engineering aspects of lyophilization, & also the role of bulking agents, additives, cryoprotectants, antioxidants, free radicals, & other products that protect the biological integrity of active substances during freezing, drying, & storage.

The pace of new research and level of innovation repeatedly introduced into the field of drug delivery to the lung is surprising given its state of maturity since the introduction of the pressurized metered dose inhaler over a half a century ago. It is clear that our understanding of pulmonary drug delivery has now evolved to the point that inhalation aerosols can be controlled both spatially and temporally to optimize their biological effects. These abilities include controlling lung deposition, by adopting formulation strategies or device technologies, and controlling drug uptake and release through sophisticated particle technologies. The large number of contributions to the scientific literature and variety of excellent texts published in recent years is evidence for the continued interest in pulmonary drug delivery research. This reference text endeavors to bring together the fundamental theory and practice of controlled drug delivery to the airways that is unavailable elsewhere. Collating and synthesizing the material in this rapidly evolving field presented a challenge and ultimately a sense of achievement that is hopefully reflected in the content of the volume.

An aerosol is a suspension of fine particles in a gas, usually air, and is generally taken to include both solid and liquid particles with dimensions ranging from a few nanometres up to around 100 micrometres in diameter. Aerosol sicence is the study of the physics and chemistry of aerosol behaviour and this includes techniques of generating particles of nanometre and micrometre dimensions: size classification and measurement, transport and deposition properties: chemical properties of aerosols in the atmosphere and in industry, as well as health effects from inhalation and industrial gas cleaning technology. Aerosols have important commercial implications, e.g. pressure-packaged `aerosol' products, agricultural sprays, atmospheric visibility and high technology materials and knowledge of aerosol properties is important in a wide range of disciplines, including industrial hygiene, air pollution, medicine, agriculture, meteorology and geochemistry. Written by an international team of contributors, this book forms a timely, concise and accessible overview of aerosol science and technology. Chemists, technologists and engineers new to aerosol science will find this book an essential companion in their studies of the subject. Those more familiar with aerosols will use it as an essential source of reference.

Handbook of Pharmaceutical Granulation Technology

Physical and Chemical Properties of Aerosols

Pyrogens, LAL Testing and Depyrogenation

Principles and Applications

Recent Advances in Novel Drug Carrier Systems

Drug-Drug Interactions

As more attention is dedicated to understanding the occupational health risks associated with the industrial manufacture and use of nanotechnology, Aerosols Handbook: Measurement, Dosimetry, and Health Effects is a timely presentation of time-tested research in the field of aerosol science. The book covers a multitude of topics in indoor, outdoor,

This thoroughly revised and expanded reference provides authoritative discussions on the physiologic, pharmacologic, metabolic, molecular, cellular and physicochemical factors, influencing the efficacy and utilization of pharmaceutical aerosol. It analyzes the latest science and developments in the generation, administration and characterization of these compounds, showcasing current clinical applications, the efficiency and limitations of major aerosol products and emerging aerosol therapies impacting the field.

For more than 100 years, this textbook has been the definitive reference for all aspects of the science and practice of pharmacy, and is used for pharmaceutics, therapeutics and pharmacy practice courses in primary curricula. Since the first edition was published, pharmacists have used this book as a key one-stop reference. This updated edition covers many education and practice issues, from the history of pharmacy and ethics, to industrial pharmacy and pharmacy practice. New to the edition are expanded sections on pharmacy administration and patient care, which include new topics such as: nutrition in pharmacy practice; self care and home diagnostic products; health care delivery systems and interdisciplinary care; and home health patient care. Also, information has been condensed into one volume for greater portability and convenience.

The assessment of bioequivalence is an important process whereby the bioavailability of a generic drug product is compared with its brand-name counterpart. Generic pharmaceutical products must be approved as therapeutic equivalents to the brand name alternative in order to be interchangeable. The demonstration of bioequivalence is an important component of therapeutic equivalence. Bioequivalence studies are very expensive, time consuming and always have the possibility of failure. The objective of this textbook is to describe some of those specific bioequivalence issues which need to be considered for the design and conduct of bioequivalence studies. By exploring scientific, legal, and international regulatory challenges, Generic Drug Development, discusses the use of alternative approaches to the measurement of plasma drug concentrations for the demonstration of bioequivalence, and covers bioequivalence procedures for drug products that are not easily assessed - based upon the physical and chemical properties of the active drug and the nature of the drug product.

Modern Pharmaceutics, Two Volume Set

Modern Pharmaceutics

Drug Stability

Inhaled Pharmaceutical Product Development Perspectives

Pharmaceutical Statistics Practical And Clinical Applications, Third Edition

The Mechanics of Inhaled Pharmaceutical Aerosols

Pharmaceutical Inhalation Aerosol Technology, Second EditionCRC Press

Colloid and Interface Science in Pharmaceutical Research and Development describes the role of colloid and surface chemistry in the pharmaceutical sciences. It gives a detailed account of colloid theory, and explains physicochemical properties of the colloidal-pharmaceutical systems, and the methods for their measurement. The book starts with fundamentals in Part I, covering fundamental aspects of colloid and interface sciences as applied to pharmaceutical sciences and thus should be suitable for teaching. Parts II and III treat applications and measurements, and they explains the application of these properties and their influence and use for the development of new drugs. Provides a clear description of the fundamentals of colloid and interface science relevant to drug research and development Explains the physicochemical/colloidal basis of pharmaceutical science Lists modern experimental characterization techniques, provides analytical equations and explanations on analyzing the experimental data Describes the most advanced techniques, AFM (Atomic Force Microscopy), SFA (Surface Force Apparatus) in detail

Modern Pharmaceutics examines the impact of pharmaceutical biotechnology, cell therapy, pharmacogenomics (biotherapeutics), and nanotechnology on current practice, and the potential for personalized medicines and implications for pediatric and geriatric formulations. Reflecting the shift away from physical pharmacy, Modern Pharmaceutics is the must-have current reference text for pharmaceutics and drug delivery.

Authored by renowned leaders in the field, this comprehensive volume covers all aspects of drug-drug interactions, including preclinical, clinical, toxicological, and regulatory perspectives.Thoroughly updated, this second edition reflects the significant advances and includes extensive new material on:key interplay between transporters and enzymes

Freeze-drying/lyophilization of Pharmaceutical and Biological Products

Principles and Practices

Remington

Thoroughly updated and expanded, this new Third Edition provides the latest information on dosage, forms, film defects, and polymer characterization. Written by renowned leaders in the field, Aqueous Polymeric Coatings for Pharmaceutical Dosage Forms is easily the most comprehensive book available on the market today. New to the Third Edition: the interaction of drugs with functional polymers the influence of processing parameters on coating quality the stabilization of polymeric film coats plasticizers and their applications in pharmaceutical coatings adhesion of polymeric films to solid substrates basic properties of latex and pseudolatex colloidal dispersions Key topics included: polymer interactions with drugs and excipients physical aging of polymeric films a complete overview and in-depth analysis of recent advances in the field, which includes information on the latest equipment used to apply polymers to a pharmaceutical system illustrated examples explaining the appropriate steps to be taken in order to solve formulation, processing, and stability problems to achieve an optimized dosage form

For over 100 years, Remington has been the definitive textbook and reference on the science and practice of pharmacy. This Twenty-First Edition keeps pace with recent changes in the pharmacy curriculum and professional pharmacy practice. More than 95 new contributors and 5 new section editors provide fresh perspectives on the field. New chapters include pharmacogenomics, application of ethical principles to practice dilemmas, technology and automation, professional communication, medication errors, re-engineering pharmacy practice, management of special risk medicines, specialization in pharmacy practice, disease state management, emergency patient care, and wound care. Purchasers of this textbook are entitled to a new, fully indexed Bonus CD-ROM, affording instant access to the full content of Remington in a convenient and portable format.