Semisolid Dosage Forms

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SIDNEY DALE

Scaleup of Liquid and Semisolid Disperse Systems Elsevier
Basic Fundamentals of Drug Delivery covers the fundamental principles, advanced methodologies and technologies employed by pharmaceutical scientists, researchers and pharmaceutical industries to transform a drug candidate or new chemical entity into a final administrable drug delivery system. The book also covers various approaches involved in optimizing the therapeutic performance of a biomolecule while designing its appropriate advanced formulation. Provides up-to-date information on translating the physicochemical properties of drugs into drug delivery systems Explores how drugs are administered via various routes, such as orally, parenterally, transdermally or through inhalation Contains extensive references and further reading for course and self-study
Semisolid Dosage Lippincott Williams & Wilkins
Pharmaceutical manufacturers are constantly facing quality crises of drug products, leading to an escalating number of product recalls and rejects. Due to the involvement of multiple factors, the goal of achieving consistent product quality is always a great challenge for pharmaceutical scientists. This volume addresses this challenge by using the Quality by Design (QbD) concept, which was instituted to focus on the systematic development of drug products with predefined objectives to provide enhanced product and process understanding. This volume presents and discusses the vital precepts underlying the efficient, effective, and cost effective development of pharmaceutical drug products. It focuses on the adoption of systematic quality principles of pharmaceutical development, which is imperative in achieving continuous improvement in end-product quality and also leads to reducing cost, time, and effort, while meeting regulatory requirements. The volume covers the important new advances in the development of solid oral dosage forms, modified release oral dosage forms,

parenteral dosage forms, semisolid dosage forms, transdermal drug, delivery systems, inhalational dosage forms, ocular drug delivery systems, nanopharmaceutical products, and nanoparticles for oral delivery.

Pharmaceutical Dosage Forms and Drug Delivery, Second Edition John Wiley & Sons

Drug products are complex mixtures of drugs and excipients and, as such, their chemical and physical stability kinetics are complex. This book discusses the stability of these dosage forms with preformulation studies through to the studies on the final products. The book is intended for graduate students, researchers and professionals in the field of Pharmaceutics and Pharmaceutical Chemistry.

Pharmaceutical Manufacturing Handbook CRC Press

In the second edition of Pharmaceutical Dosage Forms and Drug Delivery the authors integrate aspects of physical pharmacy, biopharmaceuticals, drug delivery, and biotechnology, emphasizing the increased attention that the recent spectacular advances in dosage form design and drug delivery, gene therapy, and nanotechnology have brought to the field. Highlights of the Second Edition: Additional author Ajit S. Narang brings an industrial practitioner perspective with increased focus on pharmacy math and statistics, and powders and granules Reorganized into three parts: Introduction, Physicochemical Principles, and Dosage Forms Chapters on pharmaceutical calculations, compounding principles, and powders and granules provide a complete spectrum of application of pharmaceutical principles Expansion of review questions and answers clarifies concepts for students and adds to their grasp of key concepts covered in the chapter Coverage of complexation and protein binding aspects of physical pharmacy includes the basic concepts as well as recent progress in the field Although there are numerous books on the science of pharmaceutics and dosage form design, most cover different areas of the discipline and do not provide an integrated approach to the topics. This book not only provides a singular perspective of the overall field, but it supplies a unified source of information for students, instructors, and professionals.

Pharmaceutical Drug Product Development and Process Optimization World Health Organization

This work covers the entire scope of pharmaceutics, from the basics of drug dosage and routes of administration to the finer points of drug discovery, drug product development, legislation and regulations governing quality standards and product approval for marketing.

Handbook of Pharmaceutical Manufacturing Formulations CRC Press

This textbook of Industrial Pharmacy I (B. Pharm V Semester) enables the student to understand and appreciate the influence of pharmaceutical additives and various pharmaceutical dosage forms on the performance of the drug product. The book provides detailed insight into the various pharmaceutical dosage forms and their manufacturing

techniques. It also helps in understanding the various considerations in development of pharmaceutical dosage forms. The book provides various techniques of formulation solid, liquid and semisolid dosage forms and their evaluation, methods for assessment of their quality. It covers all the topics as prescribed in the latest syllabus prescribed by PCI including Preformulation Studies, Tablets, Liquid orals, Hard gelatin capsules, soft gelatin capsules, Pellets, Parenteral Products, Ophthalmic Preparations, Cosmetics, Pharmaceutical Aerosols and Packaging Materials Sciences.

Pharmaceutical Dosage Forms and Drug Delivery Systems

Lippincott Williams & Wilkins

The effect of concentration, vehicle and surfactant on the absorption of benzocaine -3H across the rat's rectal mucosa was investigated. Blood radioactivity levels were determined after the application of benzociane -3H containing suppositories and ointments. A wet oxidation method was used for sample digestion. Since the radioactivity counted is the sum of the total radioactive molecules of any chemical form, thin layer chromotography was used to separate benzocaine from its metabolites. The in vitro hydrolysis of benzocaine in blood and the in vivo hydrolysis of benzocaine was studied. The in vitro method did not show any hydrolysis of benzocaine. However, the in vivo study did show that hydrolysis takes place. Different concentrations of benzocaine -3H in the same suppository base gave different blood radioactivity levels. The radioactivity increased with an increase in benzocaine -3H concentration. The polyethylene glycol (PEG) suppository base containing benzocaine -3H gave radioactivity levels several times higher than the same amount of drug in a cocoa butter base. The incorporation of surfactants, Span 80 and Tween 80, into the PEG suppository dosage form did not affect the absorption of benzocaine significantly (p. 05). The incorporation of Tween 80 into cocoa butter base significantly decreased the absorption of benzocaine (p. 05). However, the incorporation of Span 80 into the cocoa butter suppository vehicle did not show any significant effect. The effect of five different ointment bases on the rectal absorption of benzocaine -3H were compared. The amount of absorption of benzocaine -3H was found to be in the following decreasing order: PEGNeobase® Aquaphor® :Water (1:1)> Aquaphor® and white petrolatum. The tissue distribution of benzocaine -3H was investigated. The radioactivity level of the organs studied increased along with the increase in blood radioactivity levels. The liver and kidney contained the highest levels of radioactivity. Methemoglobinemia was recently reported after the application of high concentrations of benzocaine containing suppositories. The effect of benzocaine on the degree of methemoglobin formation was investigated by the application of 20% benzocaine -3H H n Polyethylene glycol suppository and 20% benzocaine -3H Neobase ® Methemoglobinemia was observed after the application of 20% benzocaine -3H in Polyethylene glycol suppository. However, no

methemoglobin could be measured after 20% benzocaine -3H in Neobase® was applied rectally.

Dosage Form Design Considerations Springer

Many conventional preservatives for dermal formulations have recently fallen into disrepute due to various reasons, in particular when they are used in pediatric preparations. This results in a high demand for alternative components for antimicrobial preservation. The alkanediols 2 methyl-2,4-pentanediol, 1,2 pentanediol, 1,2 hexanediol and 1,2 octanediol studied in this work are substances which may substitute conventional preservatives. Owing to their amphiphilic structure, they exhibit antimicrobial activity. However, this amphiphilicity also entails a high interaction potential of alkanediols with liquid crystalline structures in cream bases. Moreover, alkanediols may influence drug release as well as skin penetration as a further consequence of their amphiphilic characteristics. Therefore, it was the objective of this thesis to investigate the effects of the above-mentioned alkanediols on the properties of four commonly used semisolid formulations for dermal application. The first part of the work presents results of the analysis of the interfacial activity of the alkanediols. A positive direct correlation was found between the interfacial activity and the chain length of the alkyl residue of the alkanediols. Consequently, the interfacial activity is linked to the amphiphilicity of the alkanediols. The effects of the alkanediols on the stability and the inner structure of a nonionic hydrophilic cream (NHC) are described in the second part. Furthermore, this part assesses the preservative effect of the studied alkanediols by means of the test for efficacy of antimicrobial preservation according to the European Pharmacopoeia (Ph.Eur.). The incorporation of alkanediols into the mixed crystals of the cream was demonstrated to augment with increasing chain length, resulting in formulations with a slightly reduced consistency. However, the stability of the formulations was not altered by the addition of alkanediols. The test for efficacy of antimicrobial preservation revealed that the antimicrobial properties are also directly related to the chain length, as increasing chain lengths favor the incorporation of the analyzed alkanediols into microbial membranes. The third part of the present work addresses the alteration of the release of the model drug triamcinolone acetonide (TAA) by the tested alkanediols. The addition of alkanediols was found to affect the release of TAA from different formulations to various extents. Adding alkanediols to a hydrogel formulation resulted in a slightly increased release rate of the active ingredient with increasing chain length of the added alkanediol. In contrast to this, longer-chained alkanediols reduced the TAA release rate from all tested creams. Finally, in the last section, studies of the TAA skin penetration and permeation from the various formulations are presented. Further, the modification of the order of the stratum corneum lipids by the alkanediols is evaluated. The results showed that alkanediols generally increased the

TAA penetration. The observed effect again strongly depended on the formulation as well as on the alkanediol used. Since only the longer-chained alkanediols led to a significant disorder of the stratum corneum lipids, the penetration-enhancing effect of the shorter-chained alkanediols is likely caused by other factors. Overall, the results of this work clearly confirm that the studied alkanediols are very well suited as alternative preservatives in dermal preparations when considering their effects on the consistency of the formulation, the drug release and the skin penetration.

Essential Chemistry for Formulators of Semisolid and Liquid Dosages CRC Press

Volume 3 of Formulation Science and Technology is a survey of the applications of formulations in a variety of fields, based on the theories presented in Volumes 1 and 2. It offers in-depth explanations and a wealth of real-world examples for research scientists, universities, and industry practitioners in the fields of Pharmaceuticals, Cosmetics and Personal Care.

Pharmaceutical Dosage Forms and Drug Delivery, Second Edition Academic Press

Pain is both a symptom and a disease. It manifests in multiple forms and its treatment is complex. Physical, social, economic, and emotional consequences of pain can impair an individual's overall health, well-being, productivity, and relationships in myriad ways. The impact of pain at a population level is vast and, while estimates differ, the Centers for Disease Control and Prevention reported that 50 million U.S. adults are living in pain. In terms of pain's global impact, estimates suggest the problem affects approximately 1 in 5 adults across the world, with nearly 1 in 10 adults newly diagnosed with chronic pain each year. In recent years, the issues surrounding the complexity of pain management have contributed to increased demand for alternative strategies for treating pain. One such strategy is to expand use of topical pain medicationsâ€"medications applied to intact skin. This nonoral route of administration for pain medication has the potential benefit, in theory, of local activity and fewer systemic side effects. Compounding is an age-old pharmaceutical practice of combining, mixing, or adjusting ingredients to create a tailored medication to meet the needs of a patient. The aim of compounding, historically, has been to provide patients with access to therapeutic alternatives that are safe and effective, especially for people with clinical needs that cannot otherwise be met by commercially available FDA-approved drugs. Compounded Topical Pain Creams explores issues regarding the safety and effectiveness of the ingredients in these pain creams. This report analyzes the available scientific data relating to the ingredients used in compounded topical pain creams and offers recommendations regarding the treatment of patients.

Pharmaceutics-II CRC Press

Basic Physical Pharmacy provides a thorough yet accessible overview of the principles of physical pharmacy and their application in drug formulation and administration. This

definitive guide to physical pharmacy covers all types of pharmaceuticals, from traditional forms and dosages to nanotechnology-based novel dosage design.
Drug Delivery (book) Walter de Gruyter GmbH & Co KG
Pharmaceutical manufacturers are constantly facing quality crises of drug products, leading to an escalating number of product recalls and rejects. Due to the involvement of multiple factors, the goal of achieving consistent product quality is always a great challenge for pharmaceutical scientists. This volume addresses this challenge by using the Quality by Design (QbD) concept, which was instituted to focus on the systematic development of drug products with predefined objectives to provide enhanced product and process understanding. This volume presents and discusses the vital precepts underlying the efficient, effective, and cost effective development of pharmaceutical drug products. It focuses on the adoption of systematic quality principles of pharmaceutical development, which is imperative in achieving continuous improvement in end-product quality and also leads to reducing cost, time, and effort, while meeting regulatory requirements. The volume covers the important new advances in the development of solid oral dosage forms, modified release oral dosage forms, parenteral dosage forms, semisolid dosage forms, transdermal drug, delivery systems, inhalational dosage forms, ocular drug delivery systems, nanopharmaceutical products, and nanoparticles for oral delivery.
Handbook of Pharmaceutical Manufacturing Formulations Jones & Bartlett Publishers
Dosage Form Design Parameters, Volume II, examines the history and current state of the field within the pharmaceutical sciences, presenting key developments. Content includes drug development issues, the scale up of formulations, regulatory issues, intellectual property, solid state properties and polymorphism. Written by experts in the field, this volume in the Advances in Pharmaceutical Product Development and Research series deepens our understanding of dosage form design parameters. Chapters delve into a particular aspect of this fundamental field, covering principles, methodologies and the technologies employed by pharmaceutical scientists. In addition, the book contains a comprehensive examination suitable for researchers and advanced students working in pharmaceuticals, cosmetics, biotechnology and related industries. Examines the history and recent developments in drug dosage forms for pharmaceutical sciences Focuses on physicochemical aspects, prefomulation solid state properties and polymorphism Contains extensive references for further discovery and learning that are appropriate for advanced undergraduates, graduate students and those interested in drug dosage design
Absorption of Benzocaine -3H from Semi-solid Dosage Forms Following Rectal Administration in Rats Jones & Bartlett Publishers
Dosage Form Design Parameters, Volume I, examines the history and

current state of the field within the pharmaceutical sciences, presenting key developments. Content includes drug development issues, the scale up of formulations, regulatory issues, intellectual property, solid state properties and polymorphism. Written by experts in the field, this volume in the Advances in Pharmaceutical Product Development and Research series deepens our understanding of dosage form design parameters. Chapters delve into a particular aspect of this fundamental field, covering principles, methodologies and the technologies employed by pharmaceutical scientists. In addition, the book contains a comprehensive examination suitable for researchers and advanced students working in pharmaceuticals, cosmetics, biotechnology and related industries. Examines the history and recent developments in drug dosage forms for pharmaceutical sciences Focuses on physicochemical aspects, prefomulation solid state properties and polymorphism Contains extensive references for further discovery and learning that are appropriate for advanced undergraduates, graduate students and those interested in drug dosage design

Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems CRC Press

The fourth volume in the series covers the techniques and technologies involved in the preparation of semisolid products such as ointments, creams, gels, suppositories, and special topical dosage forms. Drug manufacturers need a thorough understanding of the specific requirements that regulatory agencies impose on the formulation and efficacy deter

Pharmaceutical Drug Product Development and Process Optimization Academic Press

I-Dispensing Pharmacy - II-Dispensed Medications - a-Monophasic Liquid Dosage Forms - b-Biphasic Liquid Dosage Forms - c-Semi-solid Dosage Forms - III - Sterile Dosage Forms

Handbook of Pharmaceutical Manufacturing Formulations Elsevier Health Sciences

A needed resource for pharmaceutical scientists and cosmetic chemists, Essential Chemistry for Formulators of Semisolid and Liquid Dosages provides insight into the basic chemistry of mixing different phases and test methods for the stability study of nonsolid formulations. The book covers foundational surface/colloid chemistry, which forms the necessary background for making emulsions, suspensions, solutions, and nano drug delivery systems, and the chemistry of mixing, which is critical for further formulation of drug delivery systems into semisolid (gels, creams, lotions, and ointments) or liquid final dosages. Expanding on these foundational principles, this useful guide explores stability testing methods, such as particle size, rheological/viscosity, microscopy, and chemical, and closes with a valuable discussion of regulatory issues. Essential Chemistry for Formulators of Semisolid and Liquid Dosages offers scientists and students the foundation and practical guidance to make and analyze semisolid and liquid formulations. Unique coverage of the underlying chemistry that makes possible stable dosages Quality content

written by experienced experts from the drug development industry Valuable information for academic and industrial scientists developing topical and liquid dosage formulations for pharmaceutical as well as skin care and cosmetic products

In-vitro Release Testing of Semisolid Dosage Forms Containing {460}a- and ß-hydroxy Acids American Pharmacists Association (APhA)

Even in ancient times, semi-solid preparations for cutaneous application, popularly known as ointments, played an important role in human society. An advanced scientific investigation of "ointments" as dosage forms was initiated in the 1950s. It was only from then on that the intensive physico-chemical characterization of ointments as well as the inclusion of dermatological aspects led to a comprehensive understanding of the various interactions between the vehicle, the active ingredient and the skin. From then on, many researchers were involved in optimizing semi-solid formulations with respect to continuously changing therapeutic and patient needs. Aspects that have been dealt with were the optimization of dermato-biopharmaceutical properties and many different issues related to patient compliance, such as skin tolerance, applicability, and cosmetic appeal. Moreover, processing technology has been improved and analytical techniques were developed and refined in order to enable the improved characterization of the formulation itself as well as its interaction with the skin. This Special Issue serves to highlight and capture the contemporary progress and current research on semi-solid formulations as dermal drug delivery systems. We invite articles on all aspects of semi-solid formulations, highlighting the research currently undertaken to improve and better understand these complex drug delivery systems with respect to their formulation, processing and characterization issues.

Influence of Alkanediols as Alternative Preservatives on the Properties of Semisolid Dosage Forms CRC Press

Long established as a trusted core text for pharmaceutics courses, this gold standard book is the most comprehensive source on pharmaceutical dosage forms and drug delivery systems available today. Reflecting the CAPE, APhA, and NAPLEX® competencies, Ansel’s Pharmaceutical Dosage Forms and Drug Delivery Systems covers physical pharmacy, pharmacy practice, pharmaceutics, compounding, and dosage forms, as well as the clinical application of the various dosing forms in patient care. This Tenth Edition has been fully updated to reflect new USP standards and features a dynamic new full color design, new coverage of prescription flavoring, and increased coverage of expiration dates.

Endocrine Disrupting Compounds in Semisolid Topical Dosage Forms Springer Science & Business Media

Since publication of the Second Edition in 1989, numerous innovations have occurred that affect the way scientists look at issues in the field of percutaneous absorption. Focusing on recent advances as well as updating and expanding the scope of topics covered in the previous edition, Percutaneous Absorption, Third Edition

provides thorough coverage of the skin's role as an important portal of entry for chemicals into the body. Assembles the work of nearly 80 experts-30 more than the Second Edition-into a unified, comprehensive volume that contains the latest ideas and research! Complete with nearly 600 drawings, photographs, equations, and tables and more than 1600 bibliographic citations of pertinent literature, Percutaneous Absorption, Third Edition details the applied biology of percutaneous penetration factors that affect skin permeation, such as age, vehicles, metabolism, hydration of skin, and chemical structure in vivo and in vitro techniques for measuring absorption, examining factors influencing methodology such as animal models, volatility of test compound, multiple dosage, and artificial membranes procedures for use in transdermal delivery, exploring topics such as effects of penetration enhancers on absorption, optimizing absorption, and the topical delivery of drugs to muscle tissue And presents new chapters on mathematical models cutaneous metabolism prediction of percutaneous absorption in vitro absorption methodology dermal decontamination concentration of chemicals in skin transdermal drug delivery mechanisms of absorption safety evaluation of cosmetics absorption of drugs and cosmetic ingredients nail penetration Emphasizes human applications-particularly useful for pharmacists, pharmacologists, dermatologists, cosmetic scientists, biochemists, toxicologists, public health officials, manufacturers of cosmetic and toiletry products, and graduate students in these disciplines! An invaluable reference source for readers who need to keep up with the latest developments in the field, Percutaneous Absorption, Third Edition is also an excellent experimental guide for laboratory personnel.