

Essential Chemistry For Formulators Of Semisolid And Liquid Dosages

Following the Semi-solid Microstructure Workshop sponsored by BASF and hosted by the Rutgers Center for Dermal Research, a pharmaceutical product development working group was formed. The group, known as the Q3 Working Group, selected the following five areas of focus: Particle/Globule Size and Distribution, Viscosity/Rheology/Spreadability, In Vitro Testing, State of API, State of Excipients. A committee was appointed for each of these five areas. The committees were tasked to review the literature, identify best practices, list experimental details required for an independent lab to duplicate the test, and propose scientific studies that may meaningfully advance this specific area of focus. Each committee has a chair (or co-chairs) that are the lead author(s) of the chapter. The Q3 Working Group members serve as the critical reviewers of each chapter, making suggestions that improve the quality of the document and that make each of the five chapters uniform in scope and content. Pharmaceutical development scientists that formulate topical products (creams, lotions, gels suspensions, foams, etc) and all the allied raw material suppliers, packaging suppliers, contract laboratories including CROs, CMOs and regulators need access to this book. Overall, the topic of semisolid microstructure is of equal importance to the generic pharmaceutical companies (filing Abbreviated New Drug Applications or ANDAs) and pharmaceutical companies filing New Drug Applications (NDAs). In addition to products applied to the skin, hair, and nails, The Role of Microstructure in Topical Drug Product Development' crosses over and is essential reading to developers of oral suspensions, ophthalmic ointments and gels, otic suspension, vaginal semisolids and retention enemas.

Although the United States (U.S.) and the more developed nations of the remainder of the world are blessed with a variety of pharmaceuticals, feed additives, and biological products to treat, prevent, and control animal diseases, there is a healthy desire among persons involved in animal health issues to increase our animal medicine chest. The interest stems from the desire to efficiently produce food that is safe and plentiful and from the desire to have more and better government-approved products available for the prevention and treatment of diseases of dogs, cats, and horses and for an increasing variety of minor animal species. For the animal health industry, increased drug availability means broader markets, increased revenues, and an opportunity to better serve their customers. For the veterinarian, more animal health products means that he or she is better able to treat the usual and the unusual conditions, and to prevent animal disease and suffering. No doubt, we are all winners when new technology and industrial and regulatory initiatives hasten the availability of safe and effective animal health products.

A supplementary text covering the use of polymers in the modification, protection, repair, restoration and bonding of the main classes of industrial engineering materials.

Introduction to Marine Biogeochemistry focuses on the ocean's role in the biogeochemical cycling of selected elements and the impact of humans on the cycling of these elements. Among the topics covered are the chemical composition of seawater from the perspectives of elemental speciation and the impacts of solutes on water's physical behavior; biogeochemical phenomena which control accumulation and preservation of marine sediments; marine chemistry of radioactive and stable isotopes; and seawater pollution. The book contains many examples as well as steady-state models to aid readers in understanding this growing and complex science.. The focus of Introduction to Marine Biogeochemistry is the concept of the ocean as a system, linking land and atmospheric processes The text integrates the most current research, allowing students to learn concepts in context Includes detailed coverage of computational aspects

The definitive textbook on the chemical analysis of pharmaceutical drugs – fully revised and updated Introduction to Pharmaceutical Analytical Chemistry enables students to gain fundamental knowledge of the vital concepts, techniques and applications of the chemical analysis of pharmaceutical ingredients, final pharmaceutical products and drug substances in biological fluids. A unique emphasis on pharmaceutical laboratory practices, such as sample preparation and separation techniques, provides an efficient and practical educational framework for undergraduate studies in areas such as pharmaceutical sciences, analytical chemistry and forensic analysis. Suitable for foundational courses, this essential undergraduate text introduces the common analytical methods used in quantitative and qualitative chemical analysis of pharmaceuticals. This extensively revised second edition includes a new chapter on chemical analysis of biopharmaceuticals, which includes discussions on identification, purity testing and assay of peptide and protein-based formulations. Also new to this edition are improved colour illustrations and tables, a streamlined chapter structure and text revised for increased clarity and comprehension. Introduces the fundamental concepts of pharmaceutical analytical chemistry and statistics Presents a systematic investigation of pharmaceutical applications absent from other textbooks on the subject Examines various analytical techniques commonly used in pharmaceutical laboratories Provides practice problems, up-to-date practical examples and detailed illustrations Includes updated content aligned with the current European and United States Pharmacopeia regulations and guidelines Covering the analytical techniques and concepts necessary for pharmaceutical analytical chemistry, Introduction to Pharmaceutical Analytical Chemistry is ideally suited for students of chemical and pharmaceutical sciences as well as analytical chemists transitioning into the field of pharmaceutical analytical chemistry.

Essential Chemistry for Formulators of Semisolid and Liquid Dosages Academic Press

This lavishly illustrated book provides a focal point for any historian of chemistry or chemist with an interest in this fascinating topic.

Chemistry of Essential Oils Made Even Simpler is a distillation of Dr. Stewart's seminal work Chemistry of Essential Oils Made Simple. It provides a fundamental look at the how and why essential oils work in the body. It also delves into the different perspectives on aromatherapy and the different grades of essential oils. The graphics and illustrations aid the reader to develop an understanding of basic chemistry formulations through the beginning stages of quantum physics. These amazing little things we call molecules of essential oils are packed with power and action that do wonderful things in the body. If we have a basic understanding of how they work, we can use them more effectively

The Practice of Medicinal Chemistry fills a gap in the list of available medicinal chemistry literature. It is a single-volume source on the practical aspects of medicinal chemistry. Considered ""the Bible"" by medicinal chemists, the book emphasizes the methods that chemists use to conduct their research and design new drug entities. It serves as a practical handbook about the drug discovery process, from conception of the molecules to drug production. The first part of the book covers the background of the subject matter, which includes the definition and history of medicinal chemistry, the measurement of biological activities, and the main phases of drug activity. The second part of the book presents the road to discovering a new lead compound and creating a working hypothesis. The main parts of the book discuss the optimization of the lead compound in terms of potency, selectivity, and safety. The Practice of Medicinal Chemistry can

be considered a "first-read" or "bedside book" for readers who are embarking on a career in medicinal chemistry. NEW TO THIS EDITION: * Focus on chemoinformatics and drug discovery * Enhanced pedagogical features * New chapters including: - Drug absorption and transport - Multi-target drugs * Updates on hot new areas: NEW! Drug discovery and the latest techniques NEW! How potential drugs can move through the drug discovery/ development phases more quickly NEW! Chemoinformatics

This new edition of ESSENTIAL CHEMISTRY FOR SAFE AROMATHERAPY provides an accessible account of the key theoretical aspects of chemistry and their application into the safe practice of aromatherapy. For readers with a limited science background, this book offers a clear and concisely written guide to essential information in chemistry. For practitioners, the book applies chemistry to the practical and therapeutic use of essential oils, and leads to a better understanding of composition, properties and technical data related to essential oils. Takes the fear and mystery out of chemistry for aromatherapy students! Presents crucial information in a clear and easily-digestible format, highlighting key points all along Allows professional aromatherapists to practice with greater confidence, safety and skill, and to extend the range of their practice through a clearer understanding of chemical properties of essential oils. Covers the scope of what is taught at major aromatherapy teaching centres, and structures the material to make sure each chapter provides the reader with a rounded understanding of the topic covered. A glossary is included for easy reference. Fully-updated throughout Chapter 5, Analytical Techniques completely brought up to date Chapter 6 Oil Profiles updated to include those used in current training New section entitled 'In perspectives' covers risks and benefits, interpretation of clinical trials and experimental data, use of essential oils in aromatherapy and functional groups in relation to therapeutic properties

Teaches future and current drug developers the latest innovations in drug formulation design and optimization This highly accessible, practice-oriented book examines current approaches in the development of drug formulations for preclinical and clinical studies, including the use of functional excipients to enhance solubility and stability. It covers oral, intravenous, topical, and parenteral administration routes. The book also discusses safety aspects of drugs and excipients, as well as regulatory issues relevant to formulation. Innovative Dosage Forms: Design and Development at Early Stage starts with a look at the impact of the polymorphic form of drugs on the preformulation and formulation development. It then offers readers reliable strategies for the formulation development of poorly soluble drugs. The book also studies the role of reactive impurities from the excipients on the formulation shelf life; preclinical formulation assessment of new chemical entities; and regulatory aspects for formulation design. Other chapters cover innovative formulations for special indications, including oncology injectables, delayed release and depot formulations; accessing pharmacokinetics of various dosage forms; physical characterization techniques to assess amorphous nature; novel formulations for protein oral dosage; and more. -Provides information that is essential for the drug development effort -Presents the latest advances in the field and describes in detail innovative formulations, such as nanosuspensions, micelles, and cocrystals -Describes current approaches in early pre-formulation to achieve the best in vivo results -Addresses regulatory and safety aspects, which are key considerations for pharmaceutical companies -Includes case studies from recent drug development programs to illustrate the practical challenges of preformulation design Innovative Dosage Forms: Design and Development at Early Stage provides valuable benefits to interdisciplinary drug discovery teams working in industry and academia and will appeal to medicinal chemists, pharmaceutical chemists, and pharmacologists.

Since 1948, Advances in Catalysis has filled the gap between the papers that report on and the textbooks that teach in the diverse areas of catalysis research. The editors of and contributors to Advances in Catalysis are dedicated to recording progress in this area. Advances in Catalysis, Volume 46 builds foundations of fundamental understanding at the atomic and molecular scales in support of technologically important catalytic processes. The first two chapters forge links between molecular (homogeneous) catalysis and catalysis occurring analogously-and sometimes more successfully-on surfaces. The following three chapters are concerned with advances in classical surface catalysis building on concepts of reaction kinetics and surface characterization.

Inorganic Chemistry fifth edition represents an integral part of a student's chemistry education. Basic chemical principles are set out clearly in 'Foundations' and are fully developed throughout the text, culminating in the cutting-edge research topics of the 'Frontiers', which illustrate the dynamic nature of inorganic chemistry.

This classic exposition explores the origins of chemistry, alchemy, early medical chemistry, nature of atmosphere, theory of valency, laws and structure of atomic theory, and much more.

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Annotation Papers from the Eighth Symposium on [title] held in Bal Harbour, FL, Oct. 1987. Twenty-three contributions present the latest in the field in both scientific (academic) and applied (industrial) technology. Annotation copyrighted by Book News, Inc., Portland, OR.

There is a growing global awareness of the link between good diet and health. This fascinating book reviews various functional foods or nutraceuticals and the bio-active compounds they contain in order to identify the role of bioactive compounds such as nisin, micronutrients, and hydrocolloids in the diet in overall human health. It also provides up-to-date information on functional elements like antioxidants, dietary fibres, pre & probiotics, vitamins and mineral-enriched foods in the human diet. Consisting of fifteen chapters, the book offers a systematic review of the key factors in the preparation of functional foods from selected sources, and also describes the processing, preservation and

packaging of a range of functional food products. This book is a valuable resource for students and researchers working in the field of food science, food technology, and nutrition, as well as for industry experts.

The purpose of this book is to interpret more sensitively some of the offerings of the standard text book of general chemistry. As a supplement thereto, it covers various aspects of formulation and stoichiometry that are frequently treated far too perfunctorily or, in many instances, are not considered at all. The inadequate attention often accorded by the comprehensive text to many topics within its proper purview arises, understandably enough, from the numerous broad and highly varied objectives set for the first year of the curriculum for modern chemistry in colleges and universities. For the serious student this means, more often than not, the frustrations of questions unanswered. The amplification that this book proffers in the immediate area of its subject covers the equations representing internal redox reactions, not only of the simple but, also, of the multiple disproportionations of which the complexities often discourage an undertaking despite the challenge they offer: distinctions to be observed in the balancing of equations in contrasting alkali-basic and ammonia-basic reaction media; quantitative contributions made by the ionization or dissociation effects of electrolytes to the colligative properties of their solutions; intensive application of the universal reaction principle of chemical equivalence to the stoichiometry of oxidation and reduction.

In Calabria, Italy, where bergamot has been successfully cultivated since the eighteenth century, it is commonly defined as "the prince of the Citrus genus." Written by an international panel of experts from multiple disciplines, *Citrus bergamia: Bergamot and its Derivatives* represents the most complete treatise on bergamot and its derivatives currently available. Although production of bergamot and its derivatives is comparatively small, its chemical composition and biological properties have been of great scientific interest and the oil is considered essential in many high-quality perfumes. There is also an increased demand for bergamot oil for food flavorings and gastronomy. A tribute to bergamot, *Citrus bergamia: Bergamot and its Derivatives* covers all aspects of bergamot, from its historical and botanical origins, cultural practices, and transformation technologies to the use of its derivatives, possible contaminations, and biological activity. The book examines the chemical composition of bergamot in peel oils, leaf oils, juice, and fruits, extracted by various techniques—mechanical, distillation, and by supercritical fluids. It covers newly identified classes of compounds, limonoids and statins, describing the identification and assay of natural statins and the pharmacological activities of limonoids. It also discusses bergapten properties and its uses in cosmetics and medicine, as well as the use of bergamot in perfumery and in foods and beverages. The book concludes with a chapter reviewing the available data and global legislative status of bergamot as they relate to the safe use and trade of bergamot products.

Agrochemical products and adjuvants are of vital importance in agriculture, to protect food and fibre crops from weeds, insect pests and diseases, in order to feed and clothe the growing world population. In recent years there have been increasing pressures to produce agrochemical formulations which have a lower environmental impact and are safer in use. Enormous changes have taken place in the chemistry and technology of agrochemicals over the last twenty years or so and this book provides a timely review of the most important area of technology in the development of new products. This book covers issues around international product quality and safety standards and describes the current and likely future trends which will carry the industry forward into the next millennium. It brings together well known international experts with many years of practical experience from agrochemical companies, consultancies, academic institutions and regulatory bodies. Chemists and technologists involved in developing new or improved agrochemical formulations will find this book an essential reference in the course of their work. The book will also be of interest to those working in research and development departments of raw material suppliers, as a concise review of this important field.

"Chemistry of Essential Oils Made Even Simpler is a distillation of Dr. Stewart's seminal work *Chemistry of Essential Oils Made Simple*. It provides a fundamental look at the how and why essential oils work in the body. It also delves into the different perspectives on aromatherapy and the different grades of essential oils. The graphics and illustrations aid the reader to develop an understanding of basic chemistry formulations through the beginning stages of quantum physics. These amazing little things we call molecules of essential oils are packed with power and action that do wonderful things in the body. If we have a basic understanding of how they work, we can use them more effectively."
--cover.

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

Essential Computational Modeling in Chemistry presents key contributions selected from the volume in the *Handbook of Numerical Analysis: Computational Modeling in Chemistry Vol. 10(2005)*.

Computational Modeling is an active field of scientific computing at the crossroads between Physics, Chemistry, Applied Mathematics and Computer Science. Sophisticated mathematical models are increasingly complex and extensive computer simulations are on the rise. Numerical Analysis and scientific software have emerged as essential steps for validating mathematical models and simulations based on these models. This guide provides a quick reference of computational methods for use in understanding chemical reactions and how to control them. By demonstrating various computational

methods in research, scientists can predict such things as molecular properties. The reference offers a number of techniques and the numerical analysis needed to perform rigorously founded computations. Various viewpoints of methods and applications are available for researchers to chose and experiment with; Numerical analysis and open problems is useful for experimentation; Most commonly used models and techniques for the molecular case is quickly accessible

Based on the popular course of the same title, Concepts of Chemical Engineering 4 Chemists outlines the basic aspects of chemical engineering for chemistry professionals. It clarifies the terminology used and explains the systems methodology approach to process design and operation for chemists with limited chemical engineering knowledge. The book provides practical insights into all areas of chemical engineering, including such aspects as pump design and the measurement of key process variables. The calculation of design parameters, such as heat and mass transfer coefficients, and reaction scale-up are also discussed, as well as hazard analysis, project economics and process control. Designed as a reference guide, it is fully illustrated and includes worked examples as well as extensive reference and bibliography sections. Concepts of Chemical Engineering 4 Chemists is ideal for those who either work alongside chemical engineers or who are embarking on chemical engineering-type projects.

In its recent investigation of chemical reactivity accidents, the US Chemical Safety Board noted a gap in technical guidance and regulatory coverage. This volume closes the gap in technical guidance, helping small and large companies alike identify, address, and manage chemical reactivity hazards. It guides the reader through an analysis of the potential for chemical reactivity accidents to help prevent fires, explosions, toxic chemical releases or chemical spills. This volume is applicable to processes at any scale and is particularly useful for chemists, safety managers, and engineers involved in scale-up. An enclosed CD-ROM provides portable checklists, analysis tools, and a list of additional references. Note: CD-ROM/DVD and other supplementary materials are not included as part of eBook file.

Topic Editor Benjamin Shapiro is President and co-founder of Otomagnetics. Topic Editor Sylvain Celanire is a co-Founder and Chief Executive Officer of PRAGMA Therapeutics. All other Topic Editors declare no competing commercial interests with regards to the Research Topic subject.

Educating professionals and students about the chemistry, formulation technology, and related regulatory aspects of cosmetics and perfume Cosmetics and perfume comprise a multibillion-dollar global industry. Kirk-Othmer Chemical Technology of Cosmetics provides authoritative information on the substances and processes involved, including key product groups, ingredients, formulation technology, packaging, and regulatory topics in twenty-two articles. This resource makes sense of a vast group of consumer products designed to improve the health, cleanliness, and physical appearance of the human exterior. It identifies natural and synthetic ingredients and gives details on formulation of the product so that the cosmetic is safe, easy to use, and performs as described. Particular attention is paid to the technologies that have been developed to produce them, including emulsification, stick technology, powder blending, and aerosol technology. Packaging is also addressed, as it must be attractive to the consumer, be environmentally friendly, and keep the product safe as well. Regulatory information reinforces the safety aspect. Based on Wiley's renowned Kirk-Othmer Encyclopedia of Chemical Technology, this book presents new and carefully updated articles, and features the same breadth and quality of coverage and clarity of presentation found in the original. This comprehensive guide is a valuable resource for chemists, R&D professionals, dermatologists, patent attorneys, regulatory agencies, and other professionals in the field of personal care products. It is also a must-have reference for students who plan to enter the field.

More than 80 personalities, in or from Germany, that over the centuries have shaped the development of analytical chemistry are introduced by brief biographies. These accounts go beyond summarising key biographical information and outline the individual's contributions to analytical chemistry. This richly illustrated Brief offers a unique resource of information that is not available elsewhere.

Bridging the gap between theory and application, this book will be invaluable to anyone wishing to broaden their knowledge of applied chemistry.

This book (24 chapters) covers the chemistry (chemical composition and structure) of the following spice plants and their products, and provides brief information on the morphology, and postharvest management (storage, packaging and grading) of these crops: black pepper (*Piper nigrum*), small cardamom (*Elettaria cardamomum*), large cardamom (*Amomum subulatum*), ginger, turmeric, cinnamon and cassia (*Cinnamomum* spp.), clove, nutmeg and mace, coriander (*Coriandrum sativum*), cumin (*Cuminum cyminum*), fennel, fenugreek, paprika and chilli (*Capsicum* spp.), vanilla (*Vanilla* spp.), ajowan (*Trachyspermum ammi*), star anise (*Illicium verum*), aniseed (*Pimpinella anisum*), garcinia (*Garcinia* spp.), tamarind, parsley, celery, curry leaf (*Murraya koenigii*) and bay leaf (*Laurus nobilis*). This book will be useful to researchers, industrialists and postgraduate students of agriculture, horticulture and phytochemistry, and to spice traders and processors.

The use of lubricants began in ancient times and has developed into a major international business through the need to lubricate machines of increasing complexity. The impetus for lubricant development has arisen from need, so lubricating practice has preceded an understanding of the scientific principles. This is not surprising as the scientific basis of the technology is, by nature, highly complex and interdisciplinary. However, we believe that the understanding of lubricant phenomena will continue to be developed at a molecular level to meet future challenges. These challenges will include the control of emissions from internal combustion engines, the reduction of friction and wear in machinery, and continuing improvements to lubricant performance and life-time. More recently, there has been an increased understanding of the chemical aspects of lubrication, which has complemented the knowledge and understanding gained through studies dealing with physics and engineering. This book aims to bring together this chemical information and present it in a practical way. It is written by chemists who are authorities in the various specialisations within the lubricating industry, and is intended to be of interest to chemists who may already be working in the lubricating industry or in academia, and who are seeking a chemist's view of lubrication. It will also be of benefit to engineers and technologists familiar with the industry who require a more fundamental understanding of lubricants.

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