

Chemistry

2007

ANALYTICAL

APPLIED

ENGINEERING

ENVIRONMENTAL

FOOD

ORGANIC

Welcome to the Blackwell Publishing Chemistry and Chemical Engineering Catalog 2007

The following pages provide full details of Blackwell Publishing's expanding list of high quality books and journals covering many topics of direct interest to chemists and chemical engineers in both industrial and academic environments.

Blackwell publishes across a wide spectrum of chemistry and are particularly keen to draw your attention to recent and forthcoming books in analytical chemistry, environmental chemistry, organic chemistry and chemical engineering, including:

- Analysis of Drug Impurities; Smith & Webb
Page 6
 - Environmental Chemistry of Aerosols; Colbeck
Page 11
 - Analytical Techniques for Atmospheric Measurement; Heard
Page 12
 - Volatile Organic Compounds in the Atmosphere; Koppmann
Page 12
 - Organic Reactions in Water; Lindström
Page 17
 - Organofluorine Chemistry; Uneyama
Page 18
 - Process Analytical Technology; Bakeev
Page 9
 - Principles and Applications of Chemical Microreactors; Dietrich
Page 10
 - Industrial Bioseparations; Forciniti
Page 10
- as well as established classics such as
- Lipid Biochemistry; Gurr
Page 15
 - Fluorine in Organic Chemistry; Chambers
Page 16
 - Experimental Organic Chemistry; Harwood
Page 16
 - Heterocyclic Chemistry; Joule
Page 17
- and our innovative "at a Glance" textbooks shown on pages 3 and 4.

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At a Glance Textbooks

TEXTBOOK

The Periodic Table at a Glance

M Beckett
A Platt

Inorganic chemistry is a core part of the chemistry curricula, though it is often felt to be a huge range of disparate facts that have little underlying organization or reasoning. The periodic table was developed in the latter part of the 19th century, providing an organizing structure which began to explain the underlying principles of inorganic chemistry

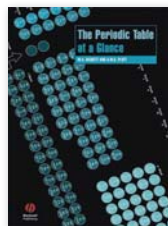
The *Periodic Table at a Glance* provides a concise overview of the main principles and reactions of inorganic chemistry, carefully structured around the periodic table, for students studying chemistry and related courses at undergraduate level. Based on the highly successful and student friendly "at a glance" approach, the information is presented in integrated, self contained double page spreads of text and illustrative material, to facilitate the rapid assimilation, understanding and recall of critical concepts, facts and definitions.

Students wanting a comprehensive and accessible overview of inorganic chemistry will find this book an ideal source of the information they require. In addition, the structured presentation will provide an invaluable study aid for students preparing for examinations.

"This is primarily a revision guide to assist undergraduate students in their study of degree level introductory inorganic chemistry."

CHEMISTRY WORLD, 2006

ISBN13: 9781405132992 • Pages: 120
Publication date: 2006 • Binding: Paperback



TEXTBOOK

Organic Chemistry at a Glance

L M Harwood
J E McKendrick
R Whitehead

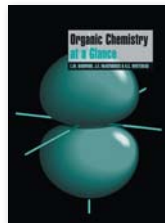
With the diverse teaching backgrounds of first year university students, the highly detailed traditional organic chemistry textbook does not provide an easily digestible presentation of the very basic information required by many students to begin their study of this exciting subject.

Based on the highly successful and student friendly "at a glance" approach, with integrated, self contained double page spreads of text and graphics, *Organic Chemistry at a Glance* provides concise organic chemistry notes for students studying chemistry and related courses at undergraduate level. Graphical presentation of information is central to the book and facilitates the rapid assimilation and understanding of the basic concepts, principles and definitions of organic chemistry. It is not intended to replace existing organic chemistry textbooks, but to provide a tool with which the student can quickly, economically and confidently acquire, regularly review and revise the basic facts that underpin organic chemistry.

"[The book is] ideal for the target audiences and priced and designed appropriately... well suited to the student who wishes to dip into organic chemistry over the course of a degree."

THE TIMES HIGHER EDUCATION SUPPLEMENT, 2004

ISBN13: 9780865427822 • Pages: 112
Publication date: 2004 • Binding: Paperback



New for 2007

TEXTBOOK

Heterocyclic Chemistry at a Glance

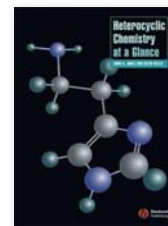
J Joule
K Mills

An understanding of the chemistry of heterocycles is essential in the study and application of organic chemistry, as well as being a central part of the increasingly popular medicinal and pharmaceutical chemistry degree courses.

Heterocyclic Chemistry at a Glance provides a concise overview of the main principles and reactions of heterocyclic chemistry, for students studying chemistry and related courses at undergraduate level. Based on the highly successful and student friendly "at a glance" approach, the material developed in this book has been chosen to help the student grasp the essence of heterocyclic chemistry, ensuring that they can confidently use that knowledge when required.

Students wanting an accessible overview of heterocyclic chemistry will find this book an ideal source of the information they require. In addition the structure of the book, which facilitates the rapid assimilation, understanding and recall of critical concepts, facts and definitions, will provide an invaluable aid to study for students preparing for examinations.

ISBN13: 9781405139182 • Pages: 160
Publication date: Jan-2007 • Binding: Paperback



TEXTBOOK

Reaction Mechanisms at a Glance

A STEPWISE APPROACH TO PROBLEM-SOLVING IN ORGANIC CHEMISTRY

M Moloney

Students at all levels find considerable difficulty in applying their knowledge of organic chemistry to the solution of problems, often relying on memory alone. This book takes a unique approach to show a general problem-solving strategy is applicable to many of the common reactions. Using a novel "at a glance" layout, the left-hand page provides a stepwise procedure for working through the reaction mechanisms, with helpful hints about the underlying chemistry and the facing page contains a fully worked-through answer.

ISBN13: 9780632050024 • Pages: 128
Publication date: 1999 • Binding: Paperback



TEXTBOOK

Environmental Chemistry at a Glance

I Pulford
H Flowers

Environmental chemistry is an increasingly popular option on many chemistry courses, is a degree subject in its own right at some institutions, and is a key part of many environmental, earth and life science courses.

Environmental Chemistry at a Glance illustrates both the operation of chemical processes in the environment and their integration with physical and biological processes. While the emphasis is on environmental chemical processes, the material in the book is placed in the wider context of the physical and biological sciences, giving an integrated approach to the environment from a chemist's point of view and providing background information in these other disciplines for the environmental chemist.



TEXTBOOK

Stereochemistry at a Glance

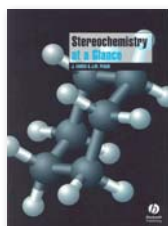
J Eames
J M Peach

Stereochemistry deals with the three-dimensional arrangement of atoms in molecules. All chemical reactions take place three dimensions and the spatial arrangement of those atoms can have a profound effect on the outcome of a chemical reaction. A good understanding of stereochemistry is, therefore, fundamental to any detailed appreciation and study of organic chemistry.

Based on the highly successful "at a Glance" series from Blackwell Publishing, this book provides a concise introduction and overview of stereochemistry for students studying chemistry and related courses at undergraduate level. It then reinforces that overview by presenting 49 fully worked out stereochemistry problems, presented in the familiar "at a Glance" double page layout. A further 98 supplementary problems, with abbreviated answers, are designed to help the undergraduate student rapidly develop the knack of thinking in three dimensions, and generate the confidence to apply their knowledge of stereochemistry in the classroom, the exam room or the laboratory.

Graphical presentation of information is central to the book. As befits such a visual subject, this facilitates the rapid assimilation and understanding of the basic concepts, principles and definitions of stereochemistry. Students using *Stereochemistry at a Glance* will find they have a resource with which they can quickly, economically and confidently acquire, regularly review the basic facts that underpin stereochemistry.

ISBN13: 9780632053759 • Pages: 144
Publication date: 2003 • Binding: Paperback



New for 2007

TEXTBOOK

Chemical Thermodynamics at a Glance

H D B Jenkins

Chemical thermodynamics looks at the energy transformations which occur as a result of chemical reactions. It is a central discipline of chemistry and chemical engineering, as it allows us to determine the direction of spontaneous chemical change and the position of chemical equilibrium in any reacting system. Being grounded in maths, it is often perceived as a difficult subject and many students are never fully comfortable with it.

Chemical Thermodynamics at a Glance provides a concise overview of the main principles of Chemical Thermodynamics for students studying chemistry and related courses at undergraduate level. Based on the highly successful and student friendly "at a glance" approach, the information is presented in integrated, self contained double page spreads of text and illustrative material. The material developed in this book has been chosen ensure the student grasps the essence of thermodynamics so those wanting an accessible overview will find this book an ideal source of the information they require. In addition, the structured presentation will provide an invaluable study aid for students preparing for examinations.

ISBN13: 9781405139977 • Pages: 128
Publication date: Sep-2007 • Binding: Paperback



Based on the highly successful and student friendly "at a glance" approach, the information is presented in integrated, self contained double page spreads of text and illustrative material, to facilitate the rapid assimilation, understanding and recall of critical concepts, facts and definitions. Students wanting a comprehensive and accessible overview of environmental chemistry will find this book an ideal source of the information they require. In addition, the structured presentation will provide an invaluable aid to revision for students preparing for examinations.

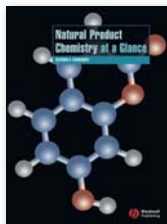
ISBN13: 9781405135320 • Pages: 144
Publication date: 2006 • Binding: Paperback

TEXTBOOK

Natural Product Chemistry at a Glance

S Stanforth

Natural products have been a fertile area of chemical investigation for many years, driving the development of both analytical chemistry and of new synthetic reactions and methodologies. Many of the most important synthetic reactions in chemistry have been developed in the quest to characterize and synthesize these materials.



Natural Product Chemistry at a Glance provides a concise overview of the main principles and reactions of natural product chemistry, for students studying chemistry and related courses at undergraduate level. Based on the highly successful and student friendly "at a glance" approach, the material developed in this book has been chosen to reinforce the principles of elementary organic reactions and to highlight the similarity between many organic reactions and biological processes. It will also serve as an initial platform for more advanced excursions into the origin of natural products.

Students using *Natural Product Chemistry at a Glance* will find they have a resource with which they can quickly, economically and confidently acquire, regularly review and revise the basic facts that underpin the biosynthesis and chemistry of natural products.

ISBN13: 9781405145626 • Pages: 152
Publication date: 2006 • Binding: Paperback

TEXTBOOK

Chemical Calculations at a Glance

P Yates

Based on the successful "at a glance" approach, with integrated double page presentations explaining the mathematics required by undergraduate students of chemistry, set in context by detailed chemical examples, this book will be indispensable to all students of chemistry. By bringing the material together in this way the student is shown how to apply the maths and how it relates to familiar concepts in chemistry. By including problems (with answers) on each presentation, the student is encouraged to practice both the mathematical manipulations and the application to problems in chemistry. More detailed chemical problems at the end of each topic illustrate the range of chemistry to which the maths is relevant and help the student acquire sufficient confidence to apply it when necessary.



"By including problems (with solutions) the student is encouraged to practice both the mathematical manipulations and their application to the problems in chemistry...would make a useful addition to the bookshelf of a chemistry undergraduate."

CHEMISTRY WORLD (JAN 2006)

Contents:

- 1 Handling
- 2 Algebra and Basic Skills
- 3 Functions
- 4 Trigonometry and Vectors
- 5 Calculus

ISBN13: 9781405118712 • Pages: 208
Publication date: 2005 • Binding: Paperback

Analytical Chemistry

New for 2007

TEXTBOOK

Principles and Applications of Fluorescence Spectroscopy

Jihad-René Albani

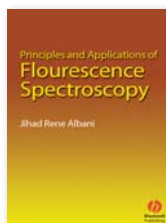
Fluorescence spectroscopy is an important investigational tool in many areas of analytical chemistry, due to its extremely high sensitivity and selectivity. Fluorescence spectroscopy is at the fore-front of many new technological areas, including all aspects of drug discovery and the pharmaceutical industry where it has almost completely replaced radiochemical labeling. With many uses across a broad range of chemical research, it has become an essential investigational technique in chemistry and biochemistry, where it allows detailed, real-time observation of the dynamics of intact biological systems with extremely high resolution.

Principles and Applications of Fluorescence Spectroscopy gives the student and new user the essential information, in a clear and straightforward way, to understand and use the technique confidently in their research. By integrating the treatment of absorption and fluorescence, the student is shown how fluorescence phenomena arise and how these can be used to probe a range of analytical problems. A key element of the book is the inclusion of practical laboratory experiments that illustrate the fundamental points and applications of the technique.

Contents:

- 1 Absorption Spectroscopy Theory
- 2 Determination of Calceofluor White Molar Extinction Coefficient Value in Absence and Presence of 1-Acid Glycoprotein
- 3 Determination of Kinetic Parameters of Lactate Dehydrogenase (LDH)
- 4 Hydrolysis of p-nitrophenyl-D-galactoside with -galactosidase from *E. coli*
- 5 Starch Hydrolysis by Amylase
- 6 Determination of the pK of a dye
- 7 Fluorescence Spectroscopy Principles
- 8 Effect of the structure and the Environment of a Fluorophore on its absorption and Fluorescence Spectra
- 9 Fluorophores Characterization and Importance in Biology
- 10 Fluorescence Quenching
- 11 Fluorescence Polarization
- 12 Interaction between Ethidium Bromide and DNA
- 13 Lens Culinaris Agglutinin: Dynamics and Binding Studies
- 14 Förster Energy Transfer
- 15 Binding of TNS on bovine serum albumin at pH 3 and pH 7
- 16 Comet Test for environmental genotoxicity evaluation: a fluorescence microscopy application
- 17 Questions and Exercises

ISBN13: 9781405138918 • Pages: 320
Publication date: Aug-2007 • Binding: Paperback



Statistical Treatment of Analytical Data

Edited by
Z Alfassi
Z Boger
Y Ronen

Statistical techniques have assumed an integral role in both the interpretation and quality assessment of analytical results. In this book the range of statistical methods available for such tasks are described in detail, with the advantages and disadvantages of each technique clarified by use of examples. With a focus on the essential practical application of these techniques the book also includes sufficient theory to facilitate understanding of the statistical principles involved.

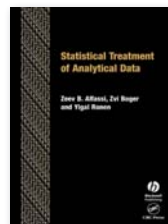
Statistical Treatment of Analytical Data is written for professional analytical chemists in industry, government and research institutions who require a practical understanding of the application of statistics in day to day activities in the analytical laboratory. It is also for students who require further and detailed information that may not be available directly in a typical undergraduate course.

"It gives a good overview of the mathematical fundamentals of the methods presented. Simple examples from the practice of analytical chemistry substantiate the reader's understanding of what happens if chemometric methods are applied."
ANALYTICAL AND BIOANALYTICAL CHEMISTRY 2006

Contents:

- 1 Introduction
- 2 Statistical Measures of Experimental Data
- 3 Distribution functions
- 4 Confidence limits of the mean
- 5 Significance test
- 6 Outliers
- 7 Instrumental Calibration - Regression Analysis
- 8 Identification of analyte by multi measurement analysis
- 9 Smoothing of Spectra Signals
- 10 Peak Search and Peak Integration
- 11 Fourier Transform Methods
- 12 General and specific issues in uncertainty analysis
- 13 Artificial Neural Networks in Analytical Chemistry

ISBN13: 9780632053674 • Pages: 272
Publication date: 2004 • Binding: Hardback



Spectrochemical Analysis Using Infrared Multichannel Detectors

Rohit Bhargava
Ira Levin

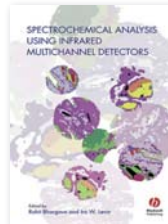
This book provides a state-of-the-art review of a major recent technology which has now reached a level of maturity. The editors have pioneered the development and application of these techniques and technologies, and the chapter authors are leading practitioners in their subject areas.

The volume encompasses methods and instrumentation across a range of applications. It is directed at researchers and professionals in vibrational spectroscopy, analytical chemistry, materials science, biomedicine, food science and combinatorial chemistry.

Contents:

- 1 Fourier transform mid-infrared spectroscopic imaging: Microspectroscopy with multichannel detectors
- 2 Near infrared spectral imaging with Focal Plane Array detectors
- 3 Multichannel detection with a Synchrotron Light Source: Design and potential
- 4 Multivariate analysis of infrared spectroscopic image data
- 5 FTIR imaging of multicomponent polymers
- 6 Combinatorial approaches to catalyst development with multichannel detectors
- 7 Materials analysis systems based on real-time near-IR spectroscopic imaging
- 8 Industrial applications of near-IR imaging
- 9 IR spectroscopic imaging: From cells to tissue
- 10 FPA imaging and spectroscopy for monitoring chemical changes in tissue
- 11 Infrared microscopy and imaging of hard and soft tissues: Application to bone, skin and cartilage
- 12 Mid infrared imaging applications in agricultural and food sciences
- 13 Application of Near-Infrared imaging for monitoring agricultural food and feed products

ISBN13: 9781405125048 • Pages: 328
Publication date: 2005 • Binding: Hardback



Atomic Spectroscopy in Elemental Analysis

Edited by
Michael Cullen

Atomic spectroscopy is the key technology used in the characterisation of inorganic materials. It encompasses a wide variety of techniques and provides rapid, sensitive and selective determination of elemental composition.

This volume provides an overview of the complete range of atomic spectroscopy techniques available to the elemental analyst. Each chapter covers the essential principles of a technique, the available instrumentation and a range of representative applications.

This is a book for analytical chemists, environmental chemists, earth scientists, food scientists and petrochemists in the industrial and academic sectors.

"...I specially recommend it to those who in their work deal with chemical inorganic analysis and need to have a personal opinion about its possibilities."

CHEMICAL ANALYSIS. (WARSAW), 2005

ISBN13: 9781841273334 • Pages: 328

Publication date: 2003 • Binding: Hardback

Introduction to Solid-State NMR Spectroscopy

Edited by
Melinda Duer

Introduction to Solid State NMR Spectroscopy is written for undergraduate and graduate students of chemistry, studying courses in nuclear magnetic resonance or undertaking research projects in this area. It will also serve as a useful introduction in industry, where researchers are turning to solid-state techniques to solve problems that are not amenable to other investigative techniques.

By covering solid-state NMR spectroscopy in a clear, straightforward and approachable way with detailed descriptions of the major solid-state NMR experiments focussing on what the experiments do and what they tell the researcher, this book will serve as an ideal introduction to the subject. These descriptions are backed up by separate mathematical explanations for those who wish to gain a more sophisticated quantitative understanding of the phenomena. With additional coverage of the practical implementation of solid-state NMR experiments integrated into the discussion, this book will be essential reading for all those using, or about to use, solid-state NMR spectroscopy.

"The book is clear and straightforward...the level of detail is very impressive and the author does not shirk her duty to explain some of the most notoriously difficult concepts in this area."

CHEMISTRY WORLD, 2005

Contents:

- 1 The Basics of NMR
- 2 Essential Techniques for Solid-State NMR
- 3 Shielding and Chemical Shift: Theory and Uses
- 4 Dipolar Coupling – Theory and Uses
- 5 Quadrupole Coupling – Theory and Uses
- 6 NMR Techniques for Studying Molecular Motion in Solids

ISBN13: 9781405109147 Pages: 368

Publication date: 2004 Binding: Paperback

TEXTBOOK

Solid State NMR Spectroscopy

Edited by
Melinda Duer

This book presents the current understanding and applications of solid-state NMR. The rigorous, but readable approach makes it easy for someone who wishes to gain an overall impression of the subject or get into the details.

The book is divided into two parts: "Fundamentals" and "Applications". The section on "Fundamentals" contains chapters that deal with the basic theory and practice of solid-state NMR. The basic techniques which all chapters rely on are collected into a second chapter to avoid unnecessary repetition later. Remaining chapters in the "Fundamentals" part deal with the major areas of solid-state NMR. Each begins with an overview of the topic which sets the chapter in context. Each of

these chapters exemplifies the principles and techniques with the applications most commonly found in current practice.

The "Further Applications" section contains a series of shorter chapters which describe the NMR techniques used in other, more specific areas.

ISBN13: 9780632053513 • Pages: 592

Publication date: 2001 • Binding: Hardback

TEXTBOOK

Principles and Practice of Analytical Chemistry

Fifth Edition

Edited by
F W Fifield
D Kealey

Over more than two decades this book has established itself as the first choice for growing numbers of students and practising analysts who require a well-written and concise overview of the principles and practice of analytical chemistry. Significant changes encompass strengthening of the coverage of data handling, together with new material covering rapidly developing subject areas of molecular spectrometry, atomic spectrometry, and separation techniques. Answers to the self-learning problems and exercises are also included. The new edition of the book will continue to provide a sound and broad base for the study of analytical chemistry.

"... a valuable reference manual."

EUROPEAN JOURNAL OF PHARMACOLOGICAL BIOPHARMACY

ISBN13: 9780632053841 • Pages: 576

Publication date: 2000 • Binding: Hardback

New for 2007

TEXTBOOK

Principles and Applications of Thermal Analysis

Edited by
Paul Gabbott

Thermal Analysis covers a range of analytical techniques practiced in chemistry, biochemistry and materials science, where sample behavior under controlled heating conditions is observed. These measurements give fundamental information on the solid state properties of the system under test, and so have found increasing use in the characterization of pharmaceutical materials, foods, specialty organic and inorganic solids, and polymeric materials.

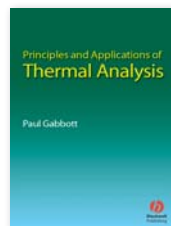
Principles and Applications of Thermal Analysis demonstrates the considerable utility of thermal analysis methods in developing new materials across a wide range of industries. By briefly covering basic TGA, DSC and TMA methods, then developing the discussion to encompass industrial applications, the book serves as an ideal introduction to the technology for new users. With a strong focus on practical issues and relating the measurements to the physical behavior of the materials under test, the book will also serve as an important reference for experienced analysts.

Contents:

- 1 A practical introduction to Differential Scanning Calorimetry
- 2 Fast Scanning DSC
- 3 ThermoGravimetric Analysis
- 4 Principles and applications of mechanical thermal analysis
- 5 Applications of thermal analysis in electrical cable manufacture
- 6 Application to Thermoplastics and Rubbers
- 7 Thermal Analysis of Biomaterials
- 8 Pharmaceuticals
- 9 Thermal methods in the study of foods and food ingredients
- 10 Thermal analysis of inorganic compound glasses and glass-ceramics

ISBN13: 9781405131711 • Pages: 320

Publication date: Oct-2007 • Binding: Hardback



Gas Chromatographic Techniques and Applications

SHEFFIELD ANALYTICAL CHEMISTRY SERIES

Edited by
Alan J Handley
Edward Adlard

The last few years have seen significant developments in many aspects of gas chromatography. In this volume, authors drawn from industrial and academic laboratories around the world consider advances over the last decade, with an emphasis on the new technologies. Application areas are addressed within chapters.

"It is excellent and I can highly recommend it to every practising chromatographer who wants to be up-to-date in the newest possibilities GC can provide"

CHROMATOGRAPHIA

ISBN13: 9781841271187 • Pages: 351

Publication date: 2001 • Binding: Hardback

Extraction Methods in Organic Analysis

SHEFFIELD ANALYTICAL CHEMISTRY SERIES

Edited by
Alan J Handley

This volume covers techniques of extraction and sample preparation, addressing background theory, the available instrumentation and the strengths and weaknesses of each method. Key applications areas are highlighted. The book is thoroughly referenced and indexed.

"A wealth of extremely useful, up-to-date, practical information, a delight to read"

CHROMATOGRAPHIA

ISBN13: 9781850759416 • Pages: 320

Publication date: 1999 • Binding: Hardback

Inductively Coupled Plasma Spectrometry and its Applications

Second Edition

SHEFFIELD ANALYTICAL CHEMISTRY SERIES

Edited by
Steve Hill

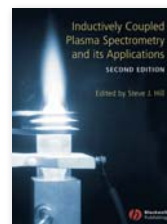
The first edition of *Inductively Coupled Plasma Spectrometry and its Applications* was written as a handbook for users who wanted a better understanding of the theory augmented by a practical insight of how best to approach a range of applications, and to provide a useful starting point for users trying an approach or technique new to them. These objectives have been retained in the second edition but a slight shift in emphasis gives the volume an overall perspective that is more forward looking.

Structured into 11 chapters, the current edition is a thorough revision of the original, covering the principles of inductively coupled plasmas, instrumentation, methodology and applications within environmental analysis, earth science, food science and clinical medicine. Each chapter, written by internationally recognised leaders in their specific subject areas, provides enough detail to be useful to both the new and experienced users. Full account is taken of recent developments, such as high resolution instruments, novel detection systems and electrospray techniques.

Written for all analytical scientists but particularly those involved in atomic spectroscopy and in environmental, geochemical, clinical or food analysis, this timely and informative book will be an essential reference in their use of inductively coupled plasmas to achieve their own scientific goals.

"A very useful source of information. Deserves a place on the bookshelf of any scientist dealing with plasma spectrochemistry"

THE ANALYST



Contents:

- 1 Introduction – a forward looking perspective
- 2 Fundamental principles of inductively coupled plasmas
- 3 Basic concepts and Instrumentation for Plasma Spectrometry
- 4 Aerosol generation and sample transport
- 5 Fundamental aspects of ICP-MS
- 6 Use of ICP-MS for isotope ratio measurements
- 7 Alternative and Mixed Gas Plasmas
- 8 Electrospray ionisation mass spectrometry: A complementary source for trace element speciation analysis
- 9 Geological applications of plasma spectrometry
- 10 Environmental and clinical applications of inductively coupled plasma spectrometry
- 11 Applications of plasma spectrometry in food science

ISBN13: 9781405135948 • Pages: 448

Publication date: 2006 • Binding: Hardback

Pharmaceutical Analysis

SHEFFIELD ANALYTICAL CHEMISTRY SERIES

Edited by

**David C Lee
Michael Webb**

The volume is directed at analytical chemists, industrial pharmacists, organic chemists, pharmaceutical chemists and biochemists.

The use of analytical sciences in the discovery, development and manufacture of pharmaceuticals is wide-ranging. From the analysis of minute amounts of complex biological materials to the quality control of the final dosage form, the use of analytical technology covers an immense range of techniques and disciplines.

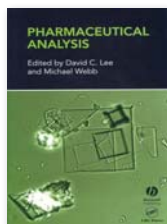
This book concentrates on the analytical aspects of drug development and manufacture, focusing on the analysis of the active ingredient or drug substance. It provides those joining the industry or other areas of pharmaceutical research with a source of reference to a broad range of techniques and their applications, allowing them to choose the most appropriate analytical technique for a particular purpose.

"This is a generally well written, illustrated and nicely produced volume covering most aspects of pharmaceutical analysis."

CHROMATOGRAPHIA 2004

ISBN13: 9781841273358 • Pages: 384

Publication date: 2003 • Binding: Hardback



Inductively Coupled Plasma Mass Spectrometry Handbook

Edited by

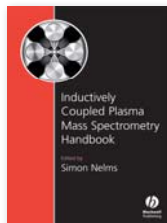
Simon M Nelms

Since the first reported linking of an Inductively Coupled Plasma (ICP) ion source with a mass spectrometer (MS) in 1983, the instrumentation and analytical techniques have been developed to a point where the technology can deliver detection limits of one part in 10^{15} . With this level of detection, ICP-MS is an invaluable tool in a huge range of applications. Development of the technology continues, for example with the application of lasers to allow direct analysis of solid samples and with linkages to liquid chromatography apparatus for elemental speciation studies, further opening up the scope for this highly sensitive analytical technique.

Despite widespread interest and usage, little has been written to describe the analytical techniques and instrumentation in a format accessible to both new and experienced users of the technique. The aim of this book is, therefore, to provide a thorough description of ICP-MS instrumentation and techniques, giving the reader sufficient knowledge to approach the technique with confidence.

"In conclusion, this book provides a detailed description of current instrumentation and its capabilities, and analytical considerations like interferences and key application of ICP MS. The information herein is very valuable to scientists using ICP MS, as well as those seeking further improvements in the performance. This book answers the actual needs, and therefore is a very valuable contribution."

CHEMICAL ANALYSIS, 2006

**Contents:**

- 1 Plasma generation, ion sampling and focusing
- 2 Mass spectrometers
- 3 Ion detection, Data Acquisition and Handling
- 4 Calibration strategies and quality assurance
- 5 Liquid sample introduction: Fundamentals and applications of flow injection and electrothermal vapourisation for ICP-MS
- 6 Laser ablation
- 7 Speciation Analysis
- 8 Collision and reaction cells
- 9 ICP-MS Applications.

ISBN13: 9781405109161 • Pages: 504

Publication date: 2005 • Binding: Hardback

Analytical Applications of Raman Spectroscopy

Edited by

Michael J Pelletier

This book is written for chemists, chemical engineers and chemical technologists who are not expert users of Raman spectroscopy technology. The background to the technique is covered along with its analytical applications. A brief introduction to Raman spectroscopy and instrumentation in general is included, along with detailed explanations of the advantages of Raman over other techniques. Emphasis is placed on the way it has been used to solve a range of analytical problems in the chemical and allied industries.

ISBN13: 9780632053056 • Pages: 496

Publication date: 1999 • Binding: Hardback

Sample Preparation for Hyphenated Analytical Techniques

Edited by

Jack Rosenfeld

Hyphenated techniques are widely used in areas where samples are presented in complex matrices, e.g. environmental, pharmaceutical and biochemical analysis. With these hyphenated techniques, sample preparation is often the most time-consuming step in analysis, particularly where compounds are present in low concentration, and it has a huge influence on the quality of the analytical results. Sample preparation is still not given the importance it deserves, however.

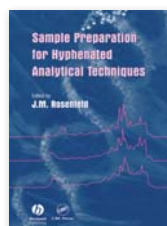
The purpose of this book is to demonstrate the sample preparation chemistry that has enabled the present sensitivity, specificity and high throughput available across a range of hyphenated analytical techniques, and to illustrate the successful utilization of existing sample preparation methodologies in various analytical applications. It identifies the problems in biology, environmental science and pharmaceutical chemistry that require new ideas in chemistry and provides considered opinion on those newer techniques that may address these problems. By dealing with wider issues than is generally found in review papers, this book will provide analytical chemists with insights that are not available by searching the literature for papers on a specific topic.

Contents:

- 1 Introduction and overview
- 2 Introduction
- 3 Sample preparation techniques – a brief overview of techniques and terminology;
- 4 Sample preparation techniques for polymers: nucleic acids; proteins and peptides polysaccharides
- 5 Sample preparation for small molecules: analysis in pharmacological and pharmaceutical investigations
- 6 Analysis for diagnosis and therapy
- 7 Environmental organic analytes
- 8 From organisms to instrumental analysis: cell to instrument
- 9 Tissue/complex organism to instrument

ISBN13: 9781405111065 • Pages: 240

Publication date: 2004 • Binding: Hardback

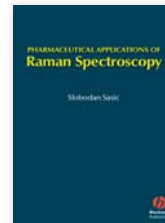
**New for 2007**

Pharmaceutical Applications of Raman Spectroscopy

Edited by

Slobodan Sasic

Pharmaceutical applications of Raman spectroscopy have developed similarly and this book will focus on those applications. Carefully organized with an emphasis on industry issues, *Pharmaceutical Applications of Raman Spectroscopy*, provides the basic theory of Raman Effect and instrumentation, and then addresses a wide range of pharmaceutical applications. Current applications that are routinely used as well as those with promising potential are covered. Applications cover a broad range from discovery to manufacturing in the pharmaceutical industry and include identifying polymorphs, monitoring real-time processes, imaging solid dosage formulations, imaging active pharmaceutical ingredients in cells, and diagnostics.

**Contents:**

- 1 Introduction to Raman effect and instruments for Raman spectroscopy
- 2 Quantitative analysis of solid dosage formulations by Raman spectroscopy
- 3 Surface-enhanced Raman spectroscopy for analysing pharmaceutical samples
- 4 Raman spectroscopy for identifying polymorphs
- 5 Raman spectroscopy for monitoring real-time processes in pharmaceutical industry
- 6 Raman imaging of solid dosage formulations
- 7 Monitoring active pharmaceutical ingredients in tissues by Raman spectroscopy
- 8 Raman imaging of active pharmaceutical ingredients in cells
- 9 Surface-enhanced Raman spectroscopy for diagnostics and biological imaging

ISBN13: 9780813810133 • Pages: 288

Publication date: Dec-2007 • Binding: Hardback

New for 2007

Analysis of Drug Impurities

Edited by

**Richard Smith
Michael Webb**

A key component of the overall quality of a pharmaceutical is control of impurities, as their presence, even in small amounts, may affect drug safety and efficacy. The identification and quantification of impurities to acceptable standards presents a significant challenge to the analytical chemist. Analytical science is developing rapidly and provides increasing opportunity to identify the structure, and therefore the origin and safety implications of these impurities, and the challenges of their measurement drives the development of modern quantitative methods.

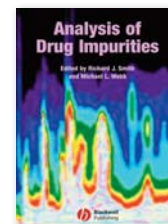
Written for both practicing and student analytical chemists, *Analysis of Drug Impurities* provides a detailed overview of the challenges and the techniques available to permit accurate identification and quantification of drug impurities.

Contents:

- 1 Organic impurities in drug substances: Origin, control and measurement
- 2 Organic impurities in drug products: Origin, control and measurement
- 3 Stereochemical impurities
- 4 Low level measurement of potent toxins
- 5 A systematic approach to impurity identification
- 6 The use chromatography and on-line structural elucidation using Spectroscopy
- 7 Preparative isolation of impurities
- 8 Impact of continuous processing
- 9 References
- 10 Index

ISBN13: 9781405133586 • Pages: 312

Publication date: Mar-2007 • Binding: Hardback



Design and Analysis in Chemical Research

Edited by
Roy Tranter

This volume covers the principles of design and analysis in chemical research and development. It is organised in chapters dealing with major activities, and understanding is generated through large numbers of examples and practical applications relating to research and development chemistry. Authors adopt a user-friendly approach, concentrating on principles and interpretation rather than formal derivation and proof.

A principal theme is that statistics and chemometrics (which relies on statistics) are essentially extensions of the logical processes used every day by chemists, and that they bring greater understanding of problems more quickly and easily than purely intuitive methods.

ISBN13: 9781850759942 • Pages: 576
Publication date: 2000 • Binding: Hardback

See also...

▶ Environmental Chemistry pages 11–13

Heard – Analytical Techniques for Atmospheric Measurement
Koppmann – Volatile Organic Compounds in the Atmosphere
Thompson – Chemical Analysis of Contaminated Land

▶ Food Chemistry pages 14–15

Goodner – Practical Analysis of Flavor and Fragrance Materials

Applied and Materials Chemistry

New for 2007

Polymer Reaction Engineering

Edited by
José Asua

Polymer Reaction Engineering provides the link between the fundamentals of polymerization kinetics and polymer microstructure achieved in the reactor. Organized according to the type of polymerization, each chapter starts with a description of the main polymers produced by the particular method, their key microstructural features and their applications. Polymerization kinetics and its effect on reactor configuration, mass and energy balances and scale-up are covered in detail. The text is illustrated with examples emphasizing general concepts, principles and methodology. Written as an authoritative guide for industrial chemists and chemical engineers in industry and academe, *Polymer Reaction Engineering* will also be a key reference source for advanced courses in polymer chemistry and technology.

Contents:

- 1 Introduction to Polymerization Processes
- 2 Coordination Polymerization
- 3 Free Radical Polymerization. Homogeneous Systems
- 4 Free radical polymerization. Heterogeneous systems
- 5 Suspension polymerization
- 6 Emulsion Polymerization
- 7 Step Growth Polymerization
- 8 Control of Polymerization Reactors

ISBN13: 9781405144421 • Pages: 320
Publication date: Sep-2007 • Binding: Hardback



New for 2007

Microwave-Enhanced Polymer Chemistry and Technology

Edited by
**Dariusz Bogdal
Aleksander Prociak**

The emergence of microwave-enhanced chemistry as an environmentally friendly method of synthesis has been significant in recent years. Features of microwave irradiation, i.e., solvent-free reactions, low waste, energy efficiency, high yield, short reaction time, and possible use of alternative solvents, can play an important role in the development of green chemistry methods.

While polymer technology forms one of the largest areas of application of microwave technology, and the methods and procedures used therein are among the most developed, there is still a relative lack of published information on the subject. *Microwave-Enhanced Polymer Chemistry and Technology* describes novel approaches to polymer processing using microwave technologies. Coverage includes background and scientific data, analysis of processes and product properties in comparison with existing technology, applications that are being used in various approaches, and the status of current research.

Contents:

- 1 Preface
- 2 Acknowledgments
- 3 Fundamentals of Microwaves
- 4 Overview of Polymerization Processes Under Microwave Conditions in Comparison with Conventional
- 5 Conditions
- 6 Thermoplastic Polymers
- 7 Thermosetting Resins
- 8 Polymer Composites and Blends
- 9 Renewable Resources for the Preparation of Polymeric Materials and Polymer Modification
- 10 Recycling of Plastics
- 11 Commercialization and Scaling-Up
- 12 Index

ISBN13: 9780813825373 • Pages: 396
Publication date: Sep-2007 • Binding: Hardback



The Chemistry of Colour Application

Edited by
**R M Christie
R R Mather
R H Wardman**

A textbook which discusses the broad chemical principles underlying the application of dyes and pigments to a wide variety of substrates – textiles, surface coatings, plastics etc. It also discusses non-substrate uses of dyes and pigments and the use of colour measurement.

ISBN13: 9780632047826 • Pages: 296
Publication date: 1999 • Binding: Hardback

TEXTBOOK

Colloid Science

PRINCIPLES, METHODS AND APPLICATIONS

Edited by
Terence Cosgrove

Colloidal systems are important across a range of industries, such as the food, pharmaceutical, agrochemical, cosmetics, polymer, paint and oil industries, and form the basis of a wide range of products (e.g. cosmetics & toiletries, processed foodstuffs and photographic film). A detailed understanding of their formation, control and application is required in those industries, yet many new graduate or postgraduate chemists or chemical engineers have little or no direct experience of colloids.

This book is based on lectures given at the highly successful Bristol Colloid Centre Spring School, designed to provide a thorough introduction to colloid science for industrial chemists, technologists and engineers. The course has attracted a wide range of industrialists from major companies with over 1000 delegates attending in all. This book brings together the BCC Spring School lectures and presents them in a coherent and logical text on practical colloid science. The authors are well known internationally in their respective fields and the book is uniquely focussed on providing the reader with a detailed understanding of the practical application of colloid science.

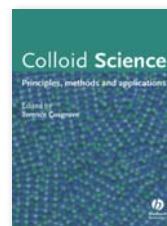
“Editor Terence Cosgrove has done an excellent job in balancing the scope and length of the various contributions, the book...will be of immense benefit to those who need the basics of colloid science for their industrial or academic activities.”

CHEMISTRY AND INDUSTRY JULY 2006

Contents:

- 1 Introduction to Colloidal Dispersions
- 2 Charge in Colloidal Systems
- 3 Colloid Stability
- 4 Surfactant Aggregation and Adsorption at Interfaces
- 5 Microemulsions
- 6 Polymers and Polymer Solutions
- 7 Polymers at Interfaces
- 8 Effect of Polymers on Colloid Stability
- 9 The Wetting of Surfaces
- 10 Aerosols
- 11 Practical Rheology
- 12 Scattering and Reflection Techniques
- 13 Optical Management
- 14 Electron microscopy

ISBN13: 9781405126731 • Pages: 304
Publication date: 2005 • Binding: Paperback



New for 2007

DNA Interactions with Polymers and Surfactants

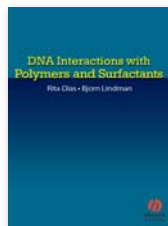
Edited by
Rita Dias
Bjorn Lindman

DNA Interactions with Polymers and Surfactants provides a broad overview of the interaction of DNA with cosolutes in both bulk solution and at interfaces. It provides the basis for understanding the factors leading to complexation between DNA and different cosolutes as well as DNA adsorption at different interfaces, and covers DNA-cosolute interactions including simple metal ions, polyelectrolytes, spermine, spermidine, surfactants and lipids, and proteins. Theoretical information such as important correlations forces, are addressed, as well as more practical aspects, such as the biological significance of the interactions such as with chromatin and transfection.

Contents:

- 1 Introduction
- 2 Polyelectrolytes: Physic-chemical Aspects and Biological Significance
- 3 Solution Behavior of Nucleic Acids
- 4 Individual DNA Molecules: Compaction and Deconvolution
- 5 Interaction of DNA with Surfactants
- 6 DNA-DNA Interactions
- 7 Interaction of DNA with Cationic Polymers
- 8 Interactions of DNA with Histones and Other Proteins
- 9 Hydration of DNA
- 10 Adsorption of DNA at solid and liquid interfaces
- 11 Interfacial DNA-Surfactant/Lipid Complexes
- 12 Electrostatic Theory of DNA-DNA and DNA-Cosolute interactions: Role of Correlation Forces
- 13 Simulations of Polyelectrolytes and polyelectrolyte-macroion systems
- 14 Relevance for Transfection of DNA-Cosolute interactions

ISBN13: 9780813806464 • Pages: 380
Publication date: Dec-2007 • Binding: Hardback



Chemistry and Technology of Surfactants

Edited by
Richard Farn

Surfactants are used throughout industry as components in a huge range of formulated products or as effect chemicals in the production or processing of other materials. A detailed understanding of the basis of their activity is required by all those who use surfactants, yet the new graduate or postgraduate chemist or chemical engineer will generally have little or no experience of how and why surfactants work.

Chemistry & Technology of Surfactants is aimed at new graduate or postgraduate level chemists and chemical engineers at the beginning their industrial careers and those in later life who become involved with surfactants for the first time. The book is a straightforward and practical survey of the chemistry of surfactants and their uses, providing a basic introduction to surfactant theory, information on the various types of surfactant and some application details. This will allow readers to build onto their scientific education the concepts and principles on which the successful use of surfactants, across a wide range of industries, is based.

Contents:

- 1 What Are Surfactants?
- 2 The Basic Theory
- 3 Applied Theory
- 4 Anionic Surfactants
- 5 Nonionic Surfactants
- 6 Other Types of Surfactants
- 7 Relevant European Legislation
- 8 Relevant Legislation, Australia, Japan and USA
- 9 Major Manufacturers of Surfactants

ISBN13: 9781405126960 • Pages: 336
Publication date: 2006 • Binding: Hardback



Surface Active Behaviour of Performance Surfactants

Edited by
David Karsa

This volume, focuses on the diversity of surfactants, both in terms of chemical structure and physico-chemical / surface active properties. These properties may be predictable for simple molecules but, for most commercial surfactants (which may be regarded as multi-component blends), this is not so easy. Yet it is important to develop a greater understanding of the interactions within a multi-component mixture, in order to select the most appropriate product for a particular application in which a combination of surface active properties is required.

A special feature of this volume is the initial chapter, in which the end uses of surface active agents are classified by industrial sector and the surfactant properties required for each application are presented in detail. The result is a unique guide to the influence of chemical structure on performance in end use, highlighting the benefits of particular surfactants and illustrating how some of the newer classes of surfactant may overcome the deficiencies of previously used products.

ISBN13: 9781841271194 • Pages: 217
Publication date: 2000 • Binding: Hardback

Responsive Polymer Materials

DESIGN AND APPLICATIONS

Edited by
Sergiy Minko

This new book offers practical insights into the latest developments in responsive polymers, i.e., polymers engineered to alter structure and properties in response to environmental inputs. The book features original design, methodological, and application data.

Chemists, biochemists, and electronic engineers will find here important new material to understand and characterize molecular and submolecular assemblies that enable the fabrication of switch-driven polymer systems. Beginning from basic research and moving to single-molecular design, the contributors illuminate switching in self-assembled aggregates of polymer chains. These analyses are extended to the switching/changing of macroscopic properties in bulk and thin films.

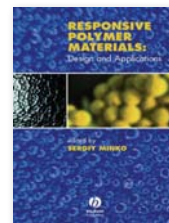
The book demonstrates how the properties of responsive polymers such as morphology, wetting behavior, adhesion, roughness, permeability etc., can be modified to create and improve biomedical devices, chemical sensors, microfluidic devices, drug delivery systems, adhesion systems, and self-regulating colloids.

For specialists investigating the potential of molecular and submolecular polymer design, this book is essential.

Contents:

- 1 Stimuli Responsive Brush Molecules
- 2 Design of Responsive Water Soluble Block Copolymers
- 3 Azobenzene-Containing Photoswitchable Polymeric Langmuir-Blodgett-Kuhn Multilayer Films
- 4 Stimuli-Responsive Semifluorinated Polymer Brushes
- 5 Nanopatterning of Stimulus-Responsive Polymer Brushes by Scanning-Probe and Electron-Beam Lithography
- 6 Responsive "Unary" Polymer Brushes with Active Anchoring Layer
- 7 Mechanism of Phase Segregation in Binary Polymer Brushes: 3D Experimental Analysis of Inner Structure
- 8 Controlling Selective Adsorption on Patterned Gradient Y-shaped Amphiphilic Brushes
- 9 Responsive Polymers in Micro-fluidic Devices
- 10 Non-Spherical Colloidal Particles and Their Stimuli-Responsive Film Formation
- 11 Responsive Siloxane-Based Polymeric Surfaces
- 12 Nanostructured Composites Based on Polymer Gels
- 13 Stimuli-Responsive Polyelectrolyte Microcapsules
- 14 Gold Nanoparticle Enhanced Transmission Surface Plasmon Resonance Spectroscopy

ISBN13: 9780813821092 • Pages: 304
Publication date: 2006 • Binding: Hardback



TEXTBOOK

Surface Chemistry of Solid and Liquid Interfaces

H Y Erbil

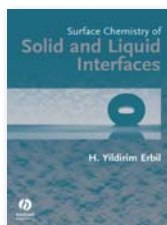
A detailed understanding of the chemistry of surfaces and interfaces is required by many research personnel in the chemical and life science industries, as surfaces and interfaces play a critical role in many of the processes they seek to influence.

Surface Chemistry of Solid and Liquid Interfaces provides a concise and easily accessible introduction to this fascinating subject. With a smooth evolution of ideas from familiar physical chemistry principles, the student can develop a sophisticated understanding of the chemistry of surfaces and interfaces. The book is also highly relevant to new researchers in industry and newly emerging nanotechnology field who often encounter surface and interface chemistry and need to be conversant with the principles and investigative tools, without being specialists.

Contents:

- 1 Introduction to surfaces and interfaces
- 2 Molecular interactions
- 3 Thermodynamics of interfaces
- 4 Pure Liquid Surfaces
- 5 Liquid Solution Surfaces
- 6 Experimental Determination of Surface Tension at Pure Liquid and Solution surfaces/interfaces
- 7 Potential Energy of interaction between Particles and Surfaces
- 8 Solid surfaces
- 9 Contact angle of Liquid drops on Solids
- 10 Some Applications involving solid/liquid Interfaces

ISBN13: 9781405119689 • Pages: 368
Publication date: 2006 • Binding: Paperback



Surfactants in Polymers, Coatings, Inks and Adhesives

Edited by
David Karsa

Surface active agents are used as process aids in the production of polymers – as additives to impart or modify polymer properties – and in the formulation and further processing of polymeric systems for a variety of applications. In all these uses, the surfactants are used as "effect chemicals", to impart specific performance characteristics or properties to the base polymer or to enhance its performance when formulated for a specific end use.

This volume focuses on those surfactant areas incorporating the greatest number of supplier and user companies. Authors have been selected from leading industrial and academic laboratories around the world.

This is a book for surfactant researchers and for manufacturers and users of surfactants: in particular, surfactant chemists; analytical chemists; environmental chemists; users of surfactant formulations in the fields of speciality chemicals, polymers and detergents; and health and safety personnel.

ISBN13: 9781841273365 • Pages: 320
Publication date: 2003 • Binding: Hardback

Chemistry and Technology of Emulsion Polymerization

Edited by
Alex van Herk

Emulsion polymerization produces high value polymers in a low cost, environmentally friendly process. The drive to develop environmentally benign production methods for polymers has resulted in widespread development and implementation of the emulsion polymerization technique. In addition, when combined with novel polymerization mechanisms the process can give rise to a range of polymer products with particularly useful properties.

Emulsion polymerization is a complex process, governed by the interplay of both chemical and physical properties including polymerisation kinetics and dispersion stability. Successful industrial application relies on understanding and controlling those properties. By carefully explaining the principles of the reaction, based on well-designed experimental investigation, *Chemistry and Technology of Emulsion Polymerization* provides a practical and intuitive explanation of emulsion polymerization. In the development of industrial processes, coupling that understanding with everyday practice can be a further difficult step, so the book emphasizes a clear, comprehensive and straightforward discussion to illustrate how the principles relate to practical application.

Written for research chemists, technologists and engineers in the polymer, fine and specialty chemicals industries, and in university or government laboratories, this book will be particularly valuable to those early on in their careers. The comprehensive and straightforward coverage will also ensure it is an important resource for advanced courses in emulsion polymerization.

"I wish it had been available when I first started using the technique. There were, and still are, few books on the subject, and it will be a valuable update for someone returning to the field after a few years away."

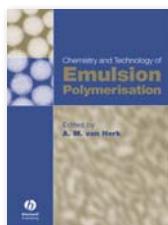
I would recommend this book to anyone beginning a career in industrial polymer chemistry."

CHEMISTRY & INDUSTRY, SEPTEMBER, 2006

Contents:

- 1 Historic overview
- 2 Introduction to Radical (co)polymerisation
- 3 Emulsion Polymerisation
- 4 Emulsion Copolymerisation, process strategies and morphology
- 5 Controlled Radical Polymerisation in Emulsion Polymerisation
- 6 Colloidal aspects of Emulsion Polymerisation
- 7 Latex Polymer Characterization
- 8 Particle Analysis
- 9 Systematic overview of Bulk Applications of Latex Polymers
- 10 Specialty Applications of Latex Polymers

ISBN13: 9781405121132 • Pages: 328
Publication date: 2005 • Binding: Hardback



new materials, such as amphiphilic polymers; new formulation methods, such as miniemulsions; and variations on technologies such as sonophoresis and iontophoresis. The authors also show the connections between skin penetration and a variety of active substances, including specialized pharmaceuticals and natural and botanical ingredients used in cosmetics. The book presents critical empirical data and design information intended to assist researchers, product developers, and testers in the pharmaceutical and cosmetics industries.

Contents:

- 1 General Skin Considerations
- 2 Novel Topical Actives
- 3 Trends in Skin Therapy
- 4 Novel Skin Delivery Systems
- 5 Transdermal Drug Delivery Technologies

ISBN13: 9780813808482 • Pages: 404
Publication date: 2006 • Binding: Hardback

New for 2007

Handbook of Industrial Water Soluble Polymers

Edited by
Peter Williams

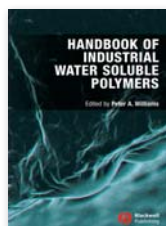
Natural and synthetic water soluble polymers are used in a wide range of familiar industrial and consumer products, including coatings and inks, papers, adhesives, cosmetics and personal care products. They perform a variety of functions without which these products would be significantly more expensive, less effective or both.

Written for research, development and formulation chemists, technologists and engineers at graduate level and beyond in the fine & specialty chemicals, polymers, food and pharmaceutical industries, the *Handbook of Industrial Water Soluble Polymers* deals specifically with the functional properties of both natural and synthetic water soluble polymers. By taking a function based approach, rather than a "polymer specific" approach the book illustrates how polymer structure leads to effect, and shows how different polymer types can be employed to achieve appropriate product properties.

Contents:

- 1 Introduction
- 2 Natural thickeners
- 3 Acrylic Polymers as Rheology Modifiers for Water-Based Solutions
- 4 Gelling Agents
- 5 Emulsification and Encapsulation
- 6 Polymeric Flocculants
- 7 Polymer Micelles
- 8 Applications of Water Soluble Dendrimers
- 9 Preparation, Properties and Applications of Colloidal Microgels
- 10 Polymers for Packaging

ISBN13: 9781405132428 • Pages: 344
Publication date: Apr-2007 • Binding: Hardback



Chemical Engineering

Process Analytical Technology

SPECTROSCOPIC TOOLS AND IMPLEMENTATION STRATEGIES FOR THE CHEMICAL AND PHARMACEUTICAL INDUSTRIES

Edited by
Katherine A. Bakeev

The use of real or near real time measurement of chemical production process parameters as the basis for achieving control or optimisation of a manufacturing process has wide application in the petrochemical, food and chemical industries. Process analytical chemistry (PAC), or process analytical technology (PAT) as it has recently been called, is now being deployed in the pharmaceutical industry, where it is seen as a technology that can help companies to improve their conformity with manufacturing compliance regulations.

The objective of this book is to provide a starting point for implementing process analytical chemistry tools in process monitoring applications or as part of a total quality management system. Written from the perspective of the spectroscopist required to implant PAT tools in a process environment, attention is focussed on measurements that are made "in process" at-line or off-line, providing data on product during manufacture. With chapters covering the key spectroscopic tools, their applications in the pharmaceutical and chemical industries and basic chemometrics, the novice can quickly develop a sound understanding of the most practical technologies and applications. Implementation strategies are fully covered and address some of the critical issues that need to be tackled when setting up a PAT project – including choosing a project with a sound business justification in the first place.

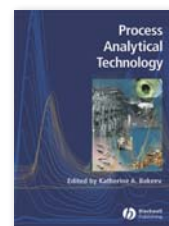
"The book provides an excellent first port of call for anyone seeking material and discussions to understand the area better. It deserves to be found in every library that serves those who are active in the field of Process Analytical Technology."

CURRENT ENGINEERING PRACTICE

Contents:

- 1 Overview and Historical Perspective of PAC
- 2 Implementation Considerations
- 3 Near Infrared Spectroscopy
- 4 Mid IR Spectroscopy
- 5 Raman Spectroscopy
- 6 UV-Vis for on-line analysis
- 7 Chemical Imaging as a Process Analytical Tool
- 8 Chemometrics for Process Analysis
- 9 On-line Applications of Spectroscopy in the Pharmaceutical Industry
- 10 Applications of Spectroscopy for off-line measurements in the pharmaceutical industry
- 11 Applications of Near-Infrared Spectroscopy (NIR) in the Chemical Industry
- 12 Future trends in Process Analytical Chemistry

ISBN13: 9781405121033 • Pages: 472
Publication date: 2005 • Binding: Hardback



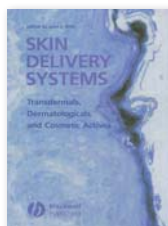
Skin Delivery Systems

TRANSDERMALS, DERMATOLOGICALS, AND COSMETIC ACTIVES

Edited by
John Wille

Current interest in drug delivery technologies is exceedingly high. Similarly, a recent upsurge in consumer awareness of the potential antiaging and antiwrinkling benefits of natural products and botanicals has spurred a revolution in the cosmetic industry for better skin care delivery technologies, both to preserve inherent activity as well as to enhance their benefits through novel formulation and delivery methods.

With these considerations in mind, *Skin Delivery Systems: Transdermals, Dermatologicals and Cosmetic Actives* brings together the emerging fields of cosmetic actives with new advances in skin delivery technologies and provides a methodical and systematic explanation of technologies used to transport pharmaceuticals and cosmetic actives through the skin's barriers. After reviewing the basic principles of dermatology and skin penetration, the reference describes and explains the most current methods of transdermal transport. Coverage includes



See also...

- ▶ See also **Analytical Chemistry** pages 4–7
Gabbott – Principles and Applications of Thermal Analysis
- ▶ See also **Food Chemistry** pages 14–15
Rowe – Chemistry and Technology of Flavors and Fragrances

Spectroscopy in Process Analysis

SHEFFIELD ANALYTICAL CHEMISTRY SERIES

Edited by
John Chalmers

This volume concentrates on the attributes, requirements and applications of spectroscopic techniques in process analysis, considering off-line and at- / near-line methodology, in addition to on-line, in-line and non-invasive approaches

At a time when cost- and time-effective process spectroscopy is becoming an issue of increasing importance within the chemical industry, this volume provides a valuable source of up-to-date information on technological advances in the area. It complements more general works on process analytical chemistry.

ISBN13: 9781841270401 • Pages: 396
Publication date: 2000 • Binding: Hardback

Handbook of Green Chemistry and Technology

Edited by
James Clark
Duncan Macquarrie

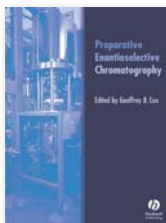
Sustainable development is now accepted as a necessary goal for achieving societal, economic and environmental objectives. Within this chemistry has a vital role to play. The chemical industry is successful but traditionally success has come at a heavy cost to the environment. The challenge for chemists and others is to develop new products, processes and services that achieve societal, economic and environmental benefits. This requires an approach that reduces the materials and energy intensity of chemical processes and products; minimizes the dispersion of harmful chemicals in the environment; maximizes the use of renewable resources and extends the durability and recyclability of products in a way that increases industrial competitiveness as well as improve its tarnished image.

ISBN13: 9780632057153 • Pages: 560
Publication date: 2002 • Binding: Hardback

Preparative Enantioselective Chromatography

Edited by
Geoffrey B Cox

The development of chiral liquid chromatography, facilitating the straightforward separation of enantiomers, was a significant advance in chromatography, leading to widespread application in analytical chemistry. Application in preparative chromatography has been less rapid, but with the development of single enantiomer pharmaceuticals its use is increasingly common in chemical synthesis at laboratory, pilot plant and even full production scale.



Written for chemists, chemical engineers and analytical chemists, *Preparative Enantioselective Chromatography* demonstrates the considerable utility of the technique in contemporary discovery, development and production scale chemistry. By briefly covering basic preparative chromatography then developing the discussion to cover chiral stationary phases for preparative use, method development and practical applications, the first part of this book serves as an ideal introduction to the technology for laboratory and pilot plant scale application. The more detailed information presented in the later chapters, on applications in discovery, process development and large scale or production environments, including case studies and equipment selection issues, ensures the book will serve as a sound reference for experienced separation scientists.

"The book is a delight to read."

"Cox's book provides chemists and chemical engineers with valuable hints and advises. The authors are, in part, experienced practitioners in the industry and academics at the forefront of this field...at every stage, material is logically presented and easy to access."

"In summary, this is an excellent compiled book with well-produced text"

ORGANIC PROCESS RESEARCH AND DEVELOPMENT, SEPTEMBER 2005

Contents:

- 1 Chiral chromatography in support of pharmaceutical process research
- 2 Introduction to preparative chromatography
- 3 Chiral stationary phases for preparative enantioselective chromatography
- 4 Method development for preparative enantioselective chromatography
- 5 Scaling up of preparative chromatographic enantiomer separations
- 6 Steady state recycling and its use in chiral separations
- 7 Simulated moving bed and related techniques
- 8 Preparative scale supercritical fluid chromatography
- 9 Equipment for preparative and large size enantioselective chromatography
- 10 Case study in production scale multicolumn continuous chromatography
- 11 Contract manufacturing and outsourcing considerations

Appendix: advanced concepts
ISBN13: 9781405118705 • Pages: 344
Publication date: 2005 • Binding: Hardback

New for 2007

Principles and Applications of Chemical Microreactors

Edited by
Thomas Dietrich

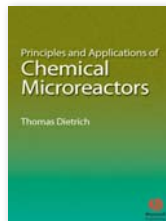
Microreactors and microreaction technology have developed with promising results. By using continuous flow chemistry in small channels, improved control and safety become possible. Reactions above the flammable point of solvents or using explosive mixtures are safely achievable, side reactions are easily suppressed, heat exchange is highly effective, chemical yield and selectivity are increased and scale up is simplified. In recent years many examples have shown the advantages microreactors can offer.

This book provides chemists and engineers with the valuable information they need to evaluate the use of microreactors, by covering the technical, operational, and economic criteria for a decision on whether a microreactor is suitable for a given application. The book will explain the systems needed to use microreactors in production and it will provide scenarios of microreactor use in different chemistries, including implementation of this technology into larger scale production processes. Crucially, a chapter is devoted to guidelines on how to calculate costs for development, investment, and production with continuous flow microreactors.

Contents:

- 1 Microfluidic Modules
- 2 Peripheric Equipment
- 3 Microreaction Systems / Plants
- 4 Applications in Industry
- 5 Economical, Ecological (political) Aspects

ISBN13: 9780813827292 • Pages: 460
Publication date: Dec-2007 • Binding: Hardback



Advanced Technologies in Biopharmaceutical Processing

Edited by
Roshni Dutton
Jeno Scharer

An increasing number of pharmaceuticals in human and veterinary medicine are being developed using advanced genetic and other methods that focus on modification of somatic and embryonic cells. These methods, in the setting of drug manufacture, call for new processes that go beyond the traditional unit processes of chemical and biological production, such as batch submerged culture.

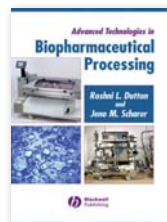
This book is the first to describe in detail these advanced biological processes and show how they are applied to the production of biopharmaceuticals, from product generation and purification to fill-finish operations.

The work explains how technologies developed in the last decade function similarly to unit operations for producing advanced biopharmaceuticals, such as hormones, cytokines, therapeutic enzymes, modified proteins, and transgenic products - to name a few. From large-scale animal cell bioreactors to patient-customized products, this volume describes the effects of new technologies on biopharmaceutical processes and guides users on how to apply new technologies in process development.

Contents:

- 1 Overview of the Biopharmaceutical Industry
- 2 Regulatory Requirements for Processing Biopharmaceuticals
- 3 Genomics, Proteomics, and Metabolomics - Impact on Biopharmaceutical Processing
- 4 New Technologies in Biopharmaceutical Upstream Processing
- 5 New Technologies in Biopharmaceutical Downstream Processing
- 6 Biopharmaceutical Product Formulation, Preservation, and Presentation
- 7 Biopharmaceutical Product and Process Monitoring, Analysis and Control
- 8 Discrete Automation in Bioprocessing Unit Operations
- 9 Emerging Biopharmaceutical Platforms

ISBN13: 9780813805177 • Pages: 336
Publication date: 2006 • Binding: Hardback



New for 2007

Industrial Bioseparations: Principles and Practice

Edited by
Daniel Forciniti

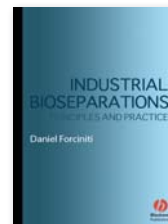
Industrial Bioseparations offers comprehensive coverage of bioseparations including all unit operations.

This new book offers a careful balance between the fundamentals of bioseparations processing and the practical applications in industry today. It is laid out in a methodical way with preliminary chapters covering general approaches to bioseparations for commercially important biomacromolecules, thermodynamics and mass transfer principles, and following chapters addressing unit operations such as filtration and chromatography. Lab experiments are included which emphasize obtaining scale up parameters as well as commonly used operating conditions.

Contents:

- 1 Introduction to Bioseparations
- 2 Thermodynamics
- 3 Principles of Mass Transfer
- 4 General Properties of Bioproducts
- 5 Cell Disruption
- 6 Separation of Solids
- 7 Chromatography
- 8 Protein Precipitation
- 9 Polishing
- 10 Separations in a Chip
- 11 Design of Separation Cascades

ISBN13: 9780813820859 • Pages: 300
Publication date: Nov-2007 • Binding: Hardback



Characterisation of Bulk Solids

Edited by
D McGlinchey

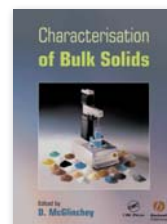
Handling of powders and bulk solids is a critical industrial technology across a broad spectrum of industries, from minerals processing to bulk and fine chemicals, and the food and pharmaceutical industries, yet is rarely found in the curricula of engineering or chemistry departments.

With contributions from leading authors in their respective fields, *Characterisation of Bulk Solids* provides the reader with a sound understanding of the techniques, importance and application of particulate materials characterization. It covers the fundamental characteristics of individual particles and bulk particulate materials, and includes discussion of a wide range of measurement techniques, and the use of material characteristics in design and industrial practice. The reader will then be in a better position to diagnose solids handling and processing problems in industry, and to deal with experts and equipment suppliers from an informed standpoint. Written for post-graduate engineers, chemical scientists and technologists at all stages of their industrial career, the book will also serve as an ideal primer in any of the specialist areas to inform further study.

Contents:

- 1 Characterising Particle Properties
- 2 Powder Mechanics and Rheology
- 3 Characterisation for Hopper and Stockpile Design
- 4 Fluidisation Behaviour
- 5 Characterisation for Pneumatic Conveyor Design
- 6 Explosibility
- 7 "Designer" Particle Characteristics
- 8 Current Industrial Practice
- 9 Future Trends

ISBN13: 9781405116244 • Pages: 280
Publication date: 2005 • Binding: Hardback



Modern Chlor-Alkali Technology Volume 8

Edited by
John Moorhouse

The book addresses the latest technical developments in the chlorine industry with emphasis on operational improvements. The effects of economic, political, environmental and safety issues surrounding the industry are covered.

World-class authors spearheaded by an internationally acknowledged expert ensure that the chapters are highly practical, authoritative and vigorous.

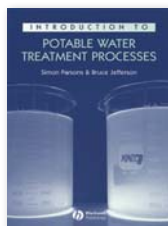
ISBN13: 9780632055593 • Pages: 352
Publication date: 2001 • Binding: Hardback

TEXTBOOK

Introduction to Potable Water Treatment Processes

Simon Parsons
Bruce Jefferson

The availability of a reliable supply of water is one of the most important determinants of human health, with the supply of clean drinking water being a multibillion dollar industry in the developed world and a key concern for less developed countries.



Introduction to Potable Water Treatment Processes illustrates the link between raw water quality and treatment process selection and performance. Individual chapters concentrate on specific water treatment processes, detailing the chemical and engineering principles behind the process, and further illustrating process implementation by the use of process flow diagrams, photographs and case studies. The final three chapters look specifically at the removal of organic and inorganic contaminants and at the treatment and disposal of sludge. *Introduction to Potable Water Treatment Processes* is essential reading for anyone operating or managing a water treatment process, or carrying out research on water treatment processes.

"It is inexpensive, a good size to carry around and can be consulted in minutes. [The] chapters are excellent with good diagrams, photographs and summarising tables."

"This is an excellent book, ideally suited to its purpose and it is already on our recommended reading list. We strongly recommend it as the best currently available."

A. WHEATLEY, LOUGHBOROUGH UNIVERSITY.
PROCEEDINGS OF ICE SEPTEMBER 2006

Contents:

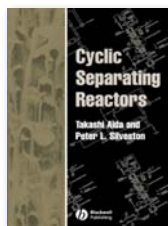
- 1 Water Quality Regulations
- 2 Water Sources and Demand
- 3 Coagulation and Flocculation
- 4 Clarification Processes
- 5 Dissolved Air Flotation
- 6 Filtration Processes
- 7 Membrane Processes
- 8 Adsorption Processes
- 9 Disinfection
- 10 Organics Removal
- 11 Inorganics Removal
- 12 Sludge Treatment and Disposal

ISBN13: 9781405127967 • Pages: 192
Publication date: 2006 • Binding: Paperback

Cyclic Separating Reactors

Takashi Aida
Peter Silveston

Cyclic Separating Reactors is a critical examination of the literature covering periodically operated separating reactors incorporating an adsorbent as well as a catalyst, aiming to establish the magnitude of performance improvement available with this type of reactor compared to systems in which the reactor and separator are separate units. The adequacy of present models is considered by comparison of simulation and experimental studies, and gaps in understanding or experimental verification of model predictions are identified.



Separating reactors, including chromatographic reactors and pressure swing reactors, are an expeditious means of process intensification, reducing both capital and operating costs, particularly where reactions are equilibrium limited. For this reason, cyclically operating separating reactors are attracting considerable interest across the range of chemical manufacturing industries, so this book is a timely and valuable summary of the literature available to the engineer. Following an introduction to multifunctional reactors and to periodic reactor operation, *Cyclic Separating Reactors* covers both chromatographic and pressure swing adsorption reactors, and is written for chemical engineers in both industry and academe.

"Although its usefulness to scientists and engineers already in the field is immeasurable, (this book) would also be most uniquely valuable to students getting initiated to this discipline. This book is a must for anyone seriously interested in acquiring a proper evaluation and knowledge on cyclic operating reactors."
CURRENT ENGINEERING PRACTICE

Contents

- 1 Separating Reactors
- 2 Periodic Operation
- 3 Introduction to Chromatographic Reactors
- 4 Chromatographic Reactors (CRs)
- 5 Countercurrent Moving Bed Chromatographic Reactors (CMCRs)
- 6 Variations of Moving Bed Chromatographic Reactors
- 7 Simulated Countercurrent Moving Bed Chromatographic Reactors (SCMCRs)
- 8 Chromatographic Reactors: Overview, Assessment, Challenges and Possibilities
- 9 Pressure Swing Reactors
- 10 Temperature Swing Reactors
- 11 Combined Pressure and Temperature Swing Reactors
- 12 Periodically Pulsed, Trapping and Extractive Reactors
- 13 Swing Reactors: Overview, Assessment, Challenges and Possibilities
- 14 Screening Reactors
- 15 Development of a Cyclic Separating Reactor
- 16 Periodically Operated Separating Reactors: Quo Vadis?

ISBN13: 9781405131568 • Pages: 400
Publication date: 2005 • Binding: Hardback

Solvent Recovery Handbook

Second Edition

Ian M Smallwood

Solvents play a vital role in modern society and yet the ultimate fate of almost all solvents is to be dispersed into the biosphere or destroyed. Nearly 35% of all VOC's entering the atmosphere are derived from solvents, so it is no surprise that solvent producers and users are under severe pressure to reduce or eliminate the volume of solvent released into the atmosphere. By providing practical guidance on the technologies available for solvent recovery and recycling, and reviewing the critical parameters required to achieve good recovery, the *Solvent Recovery Handbook* will show all solvent users how to recover solvents safely, efficiently and cost effectively.

The book also contains physical property data covering the fifty eight most commonly used solvents, plus detailed information on common solvent pairs, in tabular form. This combination of information on solvent properties and solvent recovery, much of it presented in an accessible tabular form, will make this book an essential purchase for all chemical engineers and industrial chemists dealing with solvents.

ISBN13: 9780632056477 • Pages: 432
Publication date: 2002 • Binding: Hardback

See also...

▶ See also **Organic Chemistry** pages 16–18
Maskill – Investigations of Organic Reactions and their Mechanisms

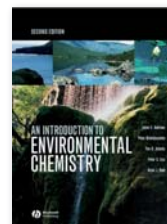
Environmental Chemistry

TEXTBOOK

Introduction to Environmental Chemistry

Second Edition

Julian E Andrews
Peter Brimblecombe
Tim D Jickells
Peter S Liss
Brian Reid



The second edition is fully revised and expanded to provide a concise but thorough introduction to the subject in its widest sense. The book retains an emphasis on describing how natural geochemical processes operate over a variety of scales in time and space, and how the effects of human perturbations can be measured. Topics range from familiar global issues such as atmospheric pollution and its effect on global warming and ozone destruction, the link between chemistry and productivity in the oceans, through contamination of soils by synthetic organic chemicals, to the microbiological processes that cause pollution of drinking water in deltas.

The book contains sections and information boxes that explain the basic chemistry underpinning the subjects covered. These boxes will help students with little or no previous chemical background to enter this fascinating subject.

"Overall, this book is a valuable addition to reading lists for students taking undergraduate level courses primarily in Environmental Science, but also in Physical Geography, Earth Sciences and Environmental Chemistry. It is very readable and well written."

INTERNATIONAL JOURNAL OF CLIMATOLOGY, APRIL 2006

ISBN13: 9780632059058 • Pages: 320
Publication date: 2003 • Binding: Paperback

New for 2007

Environmental Chemistry of Aerosols

Edited by
Ian Colbeck



Atmospheric aerosols play a significant role in the chemistry of the atmosphere, and in particular in the physics and chemistry of pollution. Ozone depletion is one result of the presence in the atmosphere of aerosols, but they also contribute to global warming and the formation of clouds. In addition, many types of pollution, such as that from the burning of fossil fuels or wood, exist as atmospheric aerosols.

Environmental Chemistry of Aerosols will describe the current state of knowledge of aerosol chemistry with each chapter written by a leader in field. It will serve as an authoritative and practical reference for scientists studying the Earth's atmosphere, and also as a useful educational and training resource for both postgraduate students and professional atmospheric scientists

Contents:

- 1 Mass Transfer to Aerosols
- 2 Organic Aerosols
- 3 Metal Aerosols
- 4 Atmospheric Aerosol Properties
- 5 Stratospheric Chemistry
- 6 Aerosol Chemistry in Remote Locations
- 7 Nucleation
- 8 Aerosol Thermodynamics

ISBN13: 9781405139199 • Pages: 320
Publication date: Oct-2007 • Binding: Hardback

Analytical Techniques for Atmospheric Measurement

Edited by
Dwayne Heard

Almost all of the breakthroughs in understanding the atmosphere have been initiated by field observations, using a range of instrumental techniques. Developing or deploying instruments to make further observations demands a thorough understanding of the chemical and spectroscopic principles on which such measurements depend.

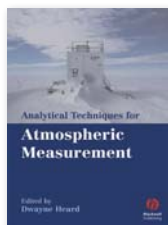
Written as an authoritative guide to the techniques of instrumental measurement for the atmospheric scientist, research student or undergraduate, *Analytical Techniques for Atmospheric Measurement* focuses on the instruments used to make real time measurements of atmospheric gas and aerosol composition. Topics covered include how they work, their strengths and weaknesses for a particular task, the platforms on which they have been deployed and how they are calibrated. It explains the fundamental principles upon which the instrumental techniques are based (i.e. what property of a molecule can be exploited to enable its detection), what limits instrumental sensitivity and accuracy, and the information that can be gained from their use.

Contents:

- 1 Field measurements of Atmospheric Composition
- 2 Infrared Absorption Spectroscopy
- 3 UV-visible Differential Optical Absorption Spectroscopy (DOAS)
- 4 Fluorescence Methods
- 5 Mass Spectrometric Methods for Atmospheric Trace Gases
- 6 Mass Spectrometric Methods for Aerosol Composition Measurements
- 7 Chemical Methods: Chemiluminescence, Chemical Amplification, Electrochemistry and Derivatization
- 8 Chromatographic Methods
- 9 Measurement of Photolysis Frequencies in the Atmosphere

ISBN13: 9781405123570 • Pages: 528

Publication date: 2006 • Binding: Hardback



New for 2007

Monitoring and Impact of Air Quality

Edited by
Mike Hepher

The impact of air quality and pollution on the environment is currently of great concern. Measurement and monitoring of air quality, be it indoor, urban or non-urban, is an integral component of any environmental management process designed to mitigate the environmental and health impact of poor air quality.

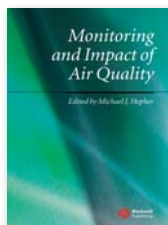
A modern, interdisciplinary approach to examining and monitoring air quality and its effects on health is presented. The important features in the development of our current knowledge and understanding of all the major aspects of air quality are presented, using contributions from scientists and engineers, and including, where relevant, information on current regulatory frameworks in the UK, Europe and other parts of the world.

Contents:

- 1 The Air we Breathe
- 2 The Built Environment
- 3 The Urban Environment
- 4 The Countryside (Non Urban Environment)
- 5 Adverse Effects of Air Pollution
- 6 Design of Monitoring Strategies and Effective QA
- 7 Vapor Phase Chemical Monitoring
- 8 Particulates (Monitoring)
- 9 Biological Monitoring of Air
- 10 Air Quality Modeling
- 11 New Sensors Technologies for Air
- 12 Regulations, Law and Risk Management
- 13 Case Studies

ISBN13: 9781405125307 • Pages: 320

Publication date: Oct-2007 • Binding: Paperback



TEXTBOOK

An Introduction to Organic Geochemistry

Second Edition

Steven Killops
Vanessa Killops

An Introduction to Organic Geochemistry explores the fate of organic matter of all types, biogenic and man-made, in the Earth System. It investigates the variety of pathways and biogeochemical transformations that carbon compounds can experience over a range of time scales and in different environments.

The scope of this second edition has been widened to provide a broad and up-to-date background. The authors have structured the text to accommodate readers with varied scientific backgrounds. Essential terminology is defined fully and boxes are used to explain concepts introduced from other disciplines. Further study is aided by the incorporation of carefully selected literature references.

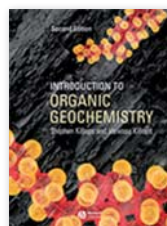
Geology, geochemistry and environmental science undergraduates and postgraduates, as well as students of ecology and oceanography, will find this text an essential introduction to organic geochemistry. Petroleum geologists will also find it an invaluable source of information.

Contents:

- 1 Carbon, the Earth and Life
- 2 Chemical composition of Biogenic Matter
- 3 Production, Preservation and Degradation of Organic Matter
- 4 Long-term fate of Organic Matter in the Geosphere
- 5 Chemical Stratigraphy
- 6 The Carbon Cycle and Climate
- 7 Anthropogenic Carbon and the Environment

ISBN13: 9780632065042 • Pages: 408

Publication date: 2004 • Binding: Paperback



New for 2007

Volatile Organic Compounds in the Atmosphere

Edited by
Ralf Koppmann

Every day, large quantities of volatile organic compounds (VOCs) are emitted into the atmosphere from both anthropogenic and natural sources. The formation of gaseous and particulate secondary products caused by oxidation of VOCs is one of the largest unknowns in the quantitative prediction of the earth's climate on a regional and global scale, and on the understanding of local air quality. To be able to model and control their impact, it is essential to understand the sources of VOCs, their distribution in the atmosphere and the chemical transformations which remove these compounds from the atmosphere.

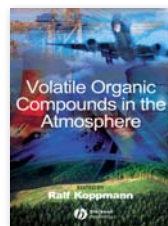
In recent years techniques for the analysis of organic compounds in the atmosphere have been developed to increase the spectrum of detectable compounds and their detection limits. New methods have been introduced to increase the time resolution of those measurements and to resolve more complex mixtures of organic compounds. *Volatile Organic Compounds in the Atmosphere* describes the current state of knowledge of the chemistry of VOCs as well as the methods and techniques to analyse gaseous and particulate organic compounds in the atmosphere. The aim is to provide an authoritative review to address the needs of both graduate students and active researchers in the field of atmospheric chemistry research.

Contents:

- 1 Organic trace gases in the atmosphere – An overview
- 2 Anthropogenic VOC
- 3 Biogenic VOC
- 4 Oxygenated VOC
- 5 Halogenated VOC
- 6 Peroxyacetyl nitrate (PAN) and related compounds
- 7 Organic Nitrates
- 8 Higher molecular Aldehydes and organic acids
- 9 Organic Composition of Aerosols
- 10 Gas chromatography-isotope ratio mass spectrometry
- 11 Proton transfer reaction Mass Spectrometry
- 12 Two-dimensional gas Chromatography

ISBN13: 9781405131155 • Pages: 568

Publication date: May-2007 • Binding: Hardback



Integrated Solid Waste Management

A LIFE CYCLE INVENTORY

Second Edition

Forbes R McDougall
Peter R White
Marina Franke
Peter Hindle

The first edition described the concept of Integrated Waste Management (IWM), and the use of Life Cycle Inventory (LCI) to provide a way to assess the environmental and economic performance of solid waste systems. Actual examples of IWM systems and published accounts of LCI models for solid waste are now appearing in the literature. To draw out the lessons learned from these experiences a significant part of this 2nd edition focuses on case studies - both of IWM systems, and of where LCI has been used to assess such systems. The 2nd edition also includes updated chapters on waste generation, waste collection, central sorting, biological treatment, thermal treatment, landfill and materials recycling.

This 2nd edition also provide a more user-friendly model (IWM-2) for waste managers. To make it more widely accessible, this edition provides the new tool in Windows format, with greatly improved input and output features, and the ability to compare different scenarios. A detailed user's guide is provided, to take the reader through the use of the IWM-2 model, step by step. IWM-2 is designed to be an "entry level" LCI model for solid waste - user-friendly and appropriate to users starting to apply life cycle thinking to waste systems - while more expert users will also find many of the advanced features of the IWM-2 model helpful.

ISBN13: 9780632058891 • Pages: 544

Publication date: 2001 • Binding: Hardback

New for 2007

Life-Cycle Impact Assessment and Environmental Risk Assessment of Chemicals

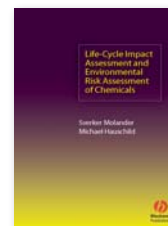
Edited by
**Sverker Molander
Michael Hauschild**

Safe use of chemicals is a major concern for society. Environmental Risk Assessment (ERA) strategies are used by regulatory bodies and industry as a means to balance the value and potential problems caused by the use of chemicals. Methods to include the potential impact of chemicals within the general framework of life-cycle impact assessment (LCIA) have also been developed, leading to confusion regarding the utility of both approaches.

For the assessment of chemicals, many concepts are common to both the LCIA and ERA approaches but some of the initial assumptions differ significantly. These differences lead to different strengths and weaknesses; consequently each approach is suited to a different range of applications. Based on information generated by the European OMNIOTOX project, *Life-Cycle Impact Assessment and Environmental Risk Assessment of Chemicals* gives practitioners the basic information needed to understand when to apply either approach, and to understand the underlying assumptions so that they can interpret the results of ERA and LCIA with confidence.

ISBN13: 9781405140539 • Pages: 288

Publication date: Dec-2007 • Binding: Hardback



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Toxicology & Ecotoxicology in Chemical Safety Assessment

Edited by
Laura Robinson
Ian Thorn

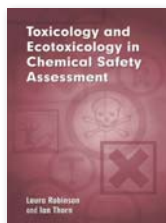
The use of chemicals in the workplace is governed by stringent health, safety and environmental legislation, and companies spend significant amounts of time and money assessing the risks associated with the safe handling and use of chemicals. In practice, a range of information is required when assessing the safe handling of chemicals, much of which is provided by the manufacturer in the material safety data sheet.

Toxicology and Ecotoxicology in Chemical Safety Assessment is written for corporate health & safety officers and safety managers, R&D chemists, process chemists and engineers, and manufacturing unit managers & supervisors in all industries where chemicals are used. The information contained in this book will help those personnel understand, interpret and apply the range of information supplied on a material safety data sheet when planning the safe handling and use of chemicals.

Contents:

- 1 Toxicology
- 2 Ecotoxicology
- 3 Classification and Labelling of Chemicals according to their Hazardous Nature
- 4 Handling Chemicals in the Workplace
- 5 Chemical Control
- 6 The Material Safety Data Sheet

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Environmental Toxicity Testing

Edited by
K Clive Thompson
Kirit Wadhia
Andreas Loibner

As an integral component of environmental policy, it has become essential to regulate and monitor toxic substances. Past emphasis has been primarily on analytical approaches to the detection of specific, targeted contaminants, thus allowing chemical characterisation. However, toxicity testing or biological assessment is necessary for ecotoxicological evaluation, and this offers marked benefits and advantages that complement chemical analysis.

Key issues to be addressed include identification of pertinent tests, reproducibility and robustness of these tests, and cost considerations. This book examines these issues and describes and explains the approaches that have been developed for environmental toxicity evaluations. Advantages, benefits and drawbacks of the strategies and methods are highlighted.

Directed equally at ecotoxicologists, industrial chemists, analytical chemists and environmental consultants, this book is written in a way that will prove helpful to both new and experienced practitioners.

Contents:

- 1 Historical Perspective and Overview
- 2 Effective Monitoring of the Environment for Toxicity
- 3 The nature and Chemistry of Toxicants
- 4 Frameworks for the Application of Toxicity Data
- 5 The Aquatic Environment
- 6 Biological Methods for Assessing Potentially Contaminated Soils
- 7 Review of Biomarkers and New Techniques for in situ aquatic studies with Bivalves
- 8 Environmental Monitoring for Genotoxic Compounds
- 9 Approach to Legislation in a Global Context
- 10 References
- 11 Index

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Chemical Analysis of Contaminated Land

Edited by
K Clive Thompson
Paul Nathanail

This book provides a unique source of reference on the chemical analysis of potentially contaminated land. It assists in specifying appropriate analyses, relevant strategies for carrying out analyses, and methods of interpreting results within the new risk-based legislative framework for contaminated land. It addresses all aspects of the analysis, from delivery of the samples to the laboratory to the presentation of the results to the clients. Emphasis is placed on concentrated, tabular data, wherever possible. Problems of analysis are highlighted and solutions are proposed. Asbestos is covered in detail in the chapter on inorganic parameters, and a chapter is included on the new techniques of ecotoxicity measurement.

Directed equally at the analytical chemist and the environmental scientist or engineer responsible for commissioning analyses of potentially contaminated soil or water samples, the book is written in a way that will prove helpful to both new and experienced practitioners. As such, it is one of the first volumes to bridge the gap between the customer and the supplier.

"This is a very well written book with a comprehensive review of the numerous tests that may be used to evaluate contaminated land. It should be extremely useful both to the bench chemist as well as to the engineer who has responsibility of understanding safe site cleanup and a desirable end point for that process."

JOURNAL OF HAZARDOUS MATERIALS 2004

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Chemical Speciation in the Environment

Second Edition

Edited by
A Ure
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Considerable recent research has focused on the topic of chemical speciation in the environment. It is increasingly realised that the distribution, mobility and biological availability of chemical elements depend not simply on their concentrations but, critically, on the forms in which they occur in natural systems. Continuing developments in analytical chemistry have made speciation practicable even where analytes are present at trace levels (as is often the case in natural samples).

In the second edition of this book, the expertise of scientists involved in chemical speciation in various fields have been brought together to provide an overview of the current status of speciation science and indicate how the field may develop in the future.

ISBN13: 9780632058488 • Pages: 480
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New for 2007

Carbon Capture and Sequestration

INTEGRATING TECHNOLOGY, MONITORING AND REGULATION

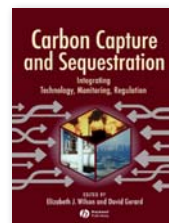
Edited by
Elizabeth Wilson
David Gerard

This book is the first systematic presentation of the technical, legal, and economic forces that must coalesce to deploy carbon dioxide capture and geologic sequestration as a viable technology within a larger carbon dioxide reduction strategy. It synthesizes key engineering data and explains the technological, regulatory, and legal conditions that must be in place for carbon sequestration to be deployed. The book offers a system of carbon management that takes into account regulation, cost, risk analysis, and geological science. The practical information in this book is designed for individuals who need to understand the requirements for achieving carbon dioxide reduction through carbon capture and sequestration technologies.

Contents:

- 1 Carbon Capture and Sequestration in Context: Technology, Regulation, and Social Acceptance
- Part I: Technical Overview for Carbon Capture and Sequestration
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See also...

- ▶ See also **At a Glance Textbooks** pages 3–4
Pulford – Environmental Chemistry At a Glance
- ▶ See also **Analytical Chemistry** pages 4–7
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Hill – Inductively Coupled Plasma Spectrometry and its Applications
Nelms – Inductively Coupled Plasma Mass Spectrometry Handbook

Food Chemistry

Vitamins

THEIR ROLE IN THE HUMAN BODY

George Ball

Vitamins is aimed at nutritionists, biochemists, physiologists and physicians whether they be researchers, teachers or students. Food scientists, food technologists and many others working in the health professions will also find much of use and interest in the book. The inclusion of the theoretical principles in the background chapters makes the book an ideal starting point for those working outside the area who need a solid overview of the subject.

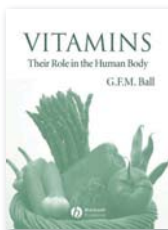
This single-source reference draws together the current knowledge of the vitamins' biological properties in the context of human nutrition. Vitamins are co-enzymes, antioxidants or precursors of hormones and are therefore involved in a great many biochemical and physiological processes. They play a vital role in the maintenance of health, and there is evidence that dietary sources of vitamins have beneficial effects in the prevention of heart-related diseases, bone diseases and possibly cancer.

Following introductory chapters on historical and nutritional aspects of vitamins, the next four chapters cover relevant and detailed aspects of physiology and functional anatomy, biochemistry, immunology and the regulation of protein synthesis by nuclear hormone receptors. These background chapters, supported by a glossary of terms, provide the scientific principles upon which vitamin functions are based. The following thirteen chapters deal with each vitamin in turn. Subject areas include chemical structure, intestinal absorption, transport, metabolism, biochemical and physiological actions, immunoregulatory properties, deficiency-related diseases and potential toxicity. An extensive bibliography refers the reader to the original research literature.

Contents:

- Foreword
- Preface
- 1 Historical Events Leading to the Establishment of Vitamins
- 2 Nutritional Aspects of Vitamins
- 3 Background Physiology and Functional Anatomy
- 4 Background Biochemistry
- 5 Background Immunology
- 6 The genetic Control of Protein Synthesis and its regulation by Nuclear Hormone Receptors

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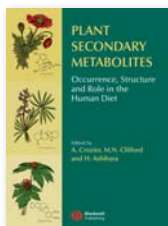
Plant Secondary Metabolites

OCCURRENCE, STRUCTURE AND ROLE IN THE HUMAN DIET

Edited by
Alan Crozier
Mike Clifford
Hiroshi Ashihara

Plant secondary metabolites have been a fertile area of chemical investigation for many years, driving the development of both analytical chemistry and of new synthetic reactions and methodologies. The subject is multi-disciplinary with chemists, biochemists and plant scientists all contributing to our current understanding. In recent years there has been an upsurge in interest from other disciplines, related to the realisation that secondary metabolites are dietary components that may have a considerable impact on human health, and to the development of gene technology that permits modulation of the contents of desirable and undesirable components.

Plant Secondary Metabolites: Occurrence, Structure and Role in the Human Diet addresses this wider interest by covering the main groups of natural products from a chemical and biosynthetic perspective with illustrations of how genetic engineering can be applied to manipulate levels of secondary



metabolites of economic value as well as those of potential importance in diet and health. These descriptive chapters are augmented by chapters showing where these products are found in the diet, how they are metabolised and reviewing the evidence for their beneficial bioactivity.

Contents:

- 1 Phenols, Polyphenols and Tannins: An Overview
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- 5 Polyacetylenes and Psoralens
- 6 Functions of the Human Intestinal Flora: The Use of Probiotics and Prebiotics
- 7 Secondary Metabolites in Fruits, Vegetables, Beverages and Other Plant-Based Dietary Components
- 8 Absorption and Metabolism of Plant Secondary Metabolites

ISBN13: 9781405125093 • Pages: 384
Publication date: 2006 • Binding: Hardback

New for 2007

Practical Analysis of Flavor and Fragrance Materials

Edited by
Kevin Goodner
Russell Rouseff

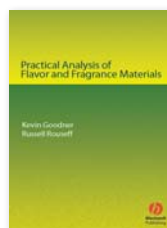
Modern flavors and fragrances are complex formulated products containing blends of aroma compounds with auxiliary materials, enabling desirable flavors or fragrances to be added to a huge range of products. The flavor and fragrance industry is a key part of the worldwide specialty chemicals industry, yet most technical recruits have minimal exposure to flavors and fragrances before recruitment. The analytical chemistry of flavor and fragrance materials presents specific challenges to the analytical chemist, as most of the chemicals involved are highly volatile, present in very small amounts and in complex mixtures.

Analytical Methods for Flavor and Fragrance Materials covers the most important methods in the analysis of flavor and fragrance materials, including traditional and newly emerging methodologies. It discusses the capabilities of the various analytical methods for flavor and fragrance analysis and guides the newcomer to the most appropriate techniques for specific analytical problems.

Contents:

- 1 The Materials of the Flavour & Fragrance Industry
- 2 Sample preparation & Traditional Flavor Analysis of Raw Materials and Finished Products
- 3 GC
- 4 Electronic nose: History, Instrumentation and Applications.
- 5 MS nose
- 6 Sensory
- 7 Regulatory Issues & Flavors Analysis

ISBN13: 9781405139168 • Pages: 320
Publication date: Dec-2007 • Binding: Hardback

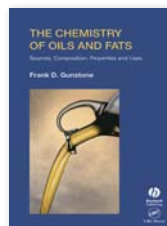


The Chemistry of Oils and Fats

SOURCES, COMPOSITION, PROPERTIES AND USES

Frank Gunstone

The three major macronutrients are proteins, carbohydrates, and lipids (oils and fats). This book is devoted to lipids, which are an important part of life for all of us. What are these materials in molecular terms? Where do they come from? What happens to them between the harvesting of crops and the appearance of the oils and fats in different products in the supermarket? How does nature produce these molecules and can we act on nature to modify the materials to increase their beneficial properties? How important are the minor products present in the fats that we consume? Since oils and fats vary, how can we analyse them? What are their physical, chemical and nutritional properties? How do the fats that we consume affect our health and well-being in both quantitative and qualitative terms? What are their major food and non-food uses?



"This book provides a broad source of reference on oils and fats chemistry. It is aimed at graduates entering the foods and oleochemical industries, postgraduate researchers, and nutritionists."

"This book provides a broad source of reference on oils and fats chemistry for graduates entering the food and oleochemical industries, postgraduate researchers and nutritionists. It offers a point of entry to the detailed literature."

FOOD SCIENCE AND TECHNOLOGY ABSTRACTS, 2005

Contents:

- 1 Oils and Fats: Sources and Constituents
- 2 Extraction, Refining and Processing
- 3 Structure of Fatty Acids and Lipids
- 4 Chemical and Biological Synthesis of Fatty Acids and Lipids
- 5 Analytical Procedures
- 6 Physical Properties
- 7 Chemical Properties related to Unsaturated Centres
- 8 Chemical Properties related to the Carboxyl Group
- 9 Nutritional properties
- 10 Edible uses of Oils and Fats
- 11 Non-edible uses of Oils and Fats
- 12 References
- 13 Index

ISBN13: 9781405116268 • Pages: 304
Publication date: 2004 • Binding: Hardback

Lipid Synthesis and Manufacture

Edited by
Frank Gunstone

This volume has been designed to offer a balanced account of the laboratory synthesis, industrial manufacture and biosynthesis of lipids. Authors describe the synthesis of all the major lipid classes, including new and revised procedures, and there are chapters devoted to the synthesis and manufacture of vitamin E, other natural antioxidants, sugar esters and ethers, and food surfactants.

This authoritative work of reference has something for all lipid scientists and technologists. It is directed at chemists and technologists working in oils and fats processing, the food industry, the oleochemicals industry and the pharmaceutical industry; at analytical chemists and quality assurance personnel; and at lipid chemists in academic research laboratories.

"An essential reference text for scientists interested in the synthesis or isolation of lipids"

FOOD CHEMISTRY

ISBN13: 9781850759317 • Pages: 488
Publication date: 1998 • Binding: Hardback

Oleochemical Manufacture and Application

Edited by
Frank Gunstone
Richard J Hamilton

This volume is concerned with the use of over 16 million tonnes of oils and fats by the oleochemical industry worldwide. It provides an overview of oleochemicals at research and professional level, with an emphasis on their industrial production and applications. Approximately half of the chapters consider matters of relevance throughout the oleochemical industry, while the remainder deal with applications. Authors are drawn from industrial and academic laboratories around the world.

Quality assessment and the need for authentication are important features of the food and personal care products industries. This volume provides an overview of the methods relevant to analysis and authentication of oils and fats. All the major oils and fats are included. Chapter authors are drawn from the academic and industrial sectors.

"It is refreshing to find a book that can take the industry as a whole, and allow both newcomers and senior members of the industry the opportunity to fully acquaint themselves with aspects that they may not have encountered before."

CHEMISTRY & INDUSTRY, DECEMBER 2002

ISBN13: 9781841272191 • Pages: 341
Publication date: 2001 • Binding: Hardback

Lipid Biochemistry

Fifth Edition

Mike Gurr
John Harwood
Keith Frayn

Since the publication of the first edition of this successful and popular book in 1970, the subject of lipid biochemistry has evolved greatly and this fifth up-to-date and comprehensive edition includes much new and exciting information.

Lipid Biochemistry, fifth edition has been largely re-written in a user-friendly way, with chapters containing special interest topic boxes, summary points and lists of suggested reading, further enhancing the accessibility and readability of this excellent text.

Contents include abbreviations and definitions used in the study of lipids, routine analytical methods, fatty acid structure and metabolism, dietary lipids and lipids as energy stores, lipid transport, lipids in cellular structures and the metabolism of structural lipids. The book provides a most comprehensive treatment of the subject, making it essential reading for all those working with or studying lipids.

Upper level students of biochemistry, biology, clinical subjects, nutrition and food science will find the contents of this book invaluable as a study aid, as will postgraduates specializing in the topics covered in the book. Professionals working in research in academia and industry, including personnel involved in food and nutrition research, new product formulation, special diet formulation (including nutraceuticals and functional foods) and other clinical aspects will find a vast wealth of information within the book's pages.

"After five editions, Lipid Biochemistry still plays a somewhat pioneering role and a new, up-to-date edition is a timely addition."
CELL BIOCHEMISTRY & FUNCTION, NOV 2004

ISBN13: 9780632054091 • Pages: 336
Publication date: 2002 • Binding: Paperback

New for 2007

Trans Fatty Acids

Edited by
Richard J Hamilton
Wolf Hamm
Albert Dijkstra

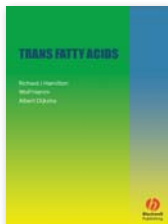
Trans fatty acids (TFAs) deliver desirable physical characteristics in food manufacturing that would otherwise require the use of more costly fats. However, studies conducted over the last thirty years have shown the detrimental effects of increased quantities of TFAs on human health and nutrition. Evidence obtained from clinical trials and epidemiological studies shows that TFAs can increase "bad" cholesterol levels in the blood while reducing "good" cholesterol. They are also linked with increased risks of coronary heart disease, thrombosis and strokes. For this reason, the food industry is keen to find alternatives to TFAs, enabling it to meet the consumer desire for "low" or "no" trans fats products. The issue is becoming more and more pressing: since January 2006, US labelling regulations mean that food manufacturers are required to state the trans fat content of their products on the packaging.

This book provides an overview of trans fatty acids in unprocessed oils and in hydrogenated fats. Topics covered include: the chemistry and occurrence of TFAs; analytical methods for determining the fatty acid composition of foods; processing techniques for avoiding the formation of TFAs; food applications; TFA alternatives in food; health and nutrition concerns and legislative aspects. It is directed at chemists and technologists working in edible oils and fats processing; food scientists and technologists; analytical chemists; nutritionists working in the food industry.

Contents:

- 1 Trans Fatty Acids, Chemistry, Occurrence
- 2 Epidemiology and Nutrition
- 3 Conjugated Linoleic Acid K
- 4 Analytical Methodologies for Trans Fatty Acids
- 5 Food Applications of Trans Fatty Acids
- 6 Food applications without Trans Fatty Acid
- 7 Processing, Hydrogenation
- 8 Processing, Fractionation and Interesterification

ISBN13: 9781405156912 • Pages: 320
Publication date: Oct-2007 • Binding: Hardback



Spectral Properties of Lipids

Edited by
Richard J Hamilton
John Cast

This volume provides an authoritative account of the use of a wide range of spectroscopic methods in the analysis of lipids, with an emphasis on topics that are attracting special current attention. Some essential background theory is included within chapters.

"Fills [an] information gap, as it now combines all aspects of lipid structural analysis by various techniques in one single volume"

LIPID TECHNOLOGY NEWSLETTER

ISBN13: 9781850759263 • Pages: 424
Publication date: 1999 • Binding: Hardback

Edible Oil Processing

Edited by
Wolf Hamm
Richard J Hamilton

A volume that presents, at professional and reference level, the current state of the art of the edible oils industry, focusing on the various processing stages and considering issues of both chemistry and process engineering. Information is provided on the types and characteristics of oils to be processed, their sources, their principal fields of application and changes in the pattern of oil demand. Chapters are included on quality assurance, safety and environmental considerations.

"Clear language, concise, easy to understand and illustrated by numerous examples"

EUROPEAN JOURNAL OF LIPID SCIENCE AND TECHNOLOGY

ISBN13: 9781841270388 • Pages: 296
Publication date: 2000 • Binding: Hardback

Oils and Fats Authentication

Edited by
Michael Jee

Quality assessment and the need for authentication are important features of the food and personal care products industries. This volume provides an overview of the methods relevant to analysis and authentication of oils and fats. All the major oils and fats are included. Chapter authors are drawn from the academic and industrial sectors.

The volume is directed at chemists and technologists working in the food industry, the pharmaceutical industry and in oils and fats processing. It will also be of interest to analytical chemists and quality assurance personnel.

"The book is excellent, well organised and clearly written. I can easily recommend it to food scientists, fat chemists and analysts working in the field of authentication and adulteration check-up of high-value oils and fats, as well as speciality oils."

CHEMISTRY AND INDUSTRY, 2004

ISBN13: 9781841273303 • Pages: 224
Publication date: 2002 • Binding: Hardback

Water-Soluble Polymer Applications in Foods

Amos Nussinovitch

Water-soluble polymers or hydrocolloids are widely used in many fields, including food, agriculture, ceramics, paper and ink technology, explosives and the textile industry. This important new book provides a comprehensive overview of novel aspects of their use in food products. Interest in the science and technology of water-soluble polymers is rapidly increasing and this book provides a much-needed and up-to-date overview.

Chapters review important new food applications, giving short historical overviews, the latest information on uses and possible future applications. Topics covered include the use of hydrocolloids for texturization, as adhesives within food products, as coatings in products such as fruit, vegetables, cheese, meat and dried foods, and for flavor encapsulation.

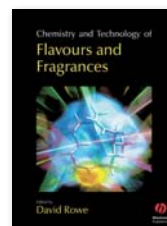
"Overall, this monograph provides an extremely well-referenced review of many of the less well-known application of hydrocolloids in food production and an opportunity to appreciate other similar application...It will be of interest primarily to those with some existing knowledge of hydrocolloids, working in the development of food ingredients."

INTERNATIONAL JOURNAL OF DAIRY TECHNOLOGY, FEBRUARY 2005

ISBN13: 9780632054299 • Pages: 240
Publication date: 2003 • Binding: Hardback

Chemistry and Technology of Flavors and Fragrances

Edited by
David Rowe



Modern flavors and fragrances are complex formulated products, containing blends of aroma compounds with auxiliary materials, enabling desirable flavors or fragrances to be added to a huge range of products. From the identification and synthesis of materials such as cinnamaldehyde and vanillin in the 19th Century to the current application of advanced analytical techniques for identification of trace aroma compounds present in natural materials, the flavor and fragrance industry has developed as a key part of the worldwide specialty chemicals industry.

With contributions mainly coming from industry based experts, *Chemistry & Technology of Flavours and Fragrances* provides a detailed overview of the synthesis, chemistry and application technology of the major classes aroma compounds. With separate chapters covering important technical aspects such as the stability of aroma compounds, structure – odor relationships and identification of aroma compounds, this book will be essential reading for both experienced and graduate level entrants to the flavor & fragrance industry. It will also serve as an important introduction to the subject for chemists and technologists in those industries that use flavors and fragrances, e.g. food, cosmetics & toiletries, and household products.

"This book is essential reading for both experienced and graduate level entrants to the flavour and fragrance industry. It also serves as an important introduction to the subject for chemists and technologists in those industries that use flavours and fragrances e.g. food, cosmetics and toiletries and household products."

CAB ABSTRACTS, JANUARY 2005

Contents:

- 1 Introduction
- 2 Identification of aroma chemicals
- 3 Flavor generation in foods
- 4 Aroma chemicals I: C₈-C₁₀ compounds
- 5 Aroma chemicals II: Heterocycles
- 6 Aroma chemicals III: Sulphur compounds
- 7 Aroma chemicals IV: Musk
- 8 Aroma chemicals V: Natural aroma chemicals
- 9 Molecules of taste and sensation
- 10 Stability of aroma chemicals
- 11 Rational odorant design
- 12 Applications I: Flavors
- 13 Applications II: Fragrance
- 14 Appendix

ISBN13: 9781405114509 Pages: 352
Publication date: 2004 Binding: Hardback



Organic Chemistry

TEXTBOOK

Organic Synthesis using Transition Metals

POSTGRADUATE CHEMISTRY SERIES

Rod Bates

This volume considers the ways in which transition metals, as catalysts and reagents, can be used in organic synthesis. It concentrates on the bond-forming reactions that set transition metal chemistry apart from "classical" organic chemistry.

Transition metals open up new opportunities for synthesis, because their means of bonding and their reaction mechanisms differ from those of the elements of the s and p blocks. In the last decade, the subject has mushroomed. Established reactions are seeing both technical improvements and increasing numbers of applications. New reactions are being developed. The practicality of the subject is demonstrated by the large number of publications coming from the process development laboratories of pharmaceutical companies.

"As with all books in this series, the presentation of the text and structural diagrams is excellent... A well-written book that does an excellent job of providing a broad introduction to the field"

SYNTHESIS

ISBN13: 9781841271071 • Pages: 200

Publication date: 2000 • Binding: Hardback

TEXTBOOK

Organic Synthesis with Carbohydrates

POSTGRADUATE CHEMISTRY SERIES

Geert Jan Boons
Karl J Hale

This book provides a broad understanding of the use of carbohydrates in organic synthesis. Emphasis is placed on retrosynthetic analysis, with discussion of why a particular synthetic route has been chosen, and mechanistic explanations are provided for key and novel reactions. Wherever possible, the authors highlight points of general significance to organic synthesis.

ISBN13: 9781850759133 • Pages: 348

Publication date: 2000 • Binding: Hardback

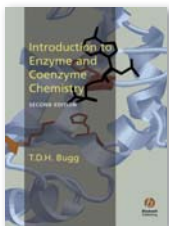
TEXTBOOK

Introduction to Enzyme and Coenzyme Chemistry

Second Edition

Tim Bugg

Enzyme catalysis is a topic of fundamental importance in organic, bio-organic and medicinal chemistry. This new edition of a very popular textbook provides a concise introduction to the underlying principles and mechanisms of enzyme and coenzyme action from a chemical perspective.



Whilst retaining the overall structure of the first edition – preliminary chapters describe the basic principles of enzyme structure and catalysis moving through to detailed discussions of the major classes of enzyme processes in the later chapters – the book has been thoroughly updated to include information on the most recent advances in our understanding of enzyme action. A major feature of the second edition is the inclusion of two-colour figures of the active sites of enzymes discussed in the text, in order to illustrate the interplay between enzyme structure and function. Problems, with outline answers, at the end of each chapter give the student the chance to check their understanding of the material.

As a concise but comprehensive account, *Introduction to Enzyme and Coenzyme Chemistry* will continue to prove invaluable to both undergraduate and postgraduate students of organic, bio-organic and medicinal chemistry.

"...the well-chosen topics provide a highly readable, coherent introduction to enzyme chemistry."

JOURNAL OF ENZYME INHIBITION AND MEDICINAL CHEMISTRY, 2005

Contents:

- 1 From Jack Beans to Designer Genes
- 2 All Enzymes are Proteins
- 3 Enzymes are Wonderful Catalysts
- 4 Methods for Studying Enzymatic Reactions
- 5 Hydrolytic and Group Transfer Reactions
- 6 Enzymatic Redox Chemistry
- 7 Enzymatic Carbon-Carbon bond formation
- 8 Enzymatic additional/elimination reactions
- 9 Enzymatic transformations of Amino Acids
- 10 Isomerases
- 11 Radicals in Enzyme Catalysis
- 12 Non-enzymatic Biological Catalysis

ISBN13: 9781405114523 • Pages: 304

Publication date: 2004 • Binding: Paperback

Fluorine in Organic Chemistry

Richard Chambers

The introduction of carbon – fluorine bonds into organic compounds can profoundly influence their chemical and physical properties when compared to their non-fluorine containing analogues, leading to a range of man-made materials with highly desirable properties. These molecules are of interest across the wide spectrum of industrial and academic organic chemistry, from pharmaceuticals, through fine and specialty chemicals to polymers. From Prozac to Teflon, many of the most important products of the chemical and life-science industries rely on organic fluorine chemistry for their useful properties.

In this new book the author, internationally known for his contribution to organic fluorine chemistry, covers both the preparative methodologies and chemical properties of partially and highly fluorinated organic systems. Written as an authoritative guide to the subject for organic chemists in universities and the pharmaceutical, agrochemical, specialty organic and polymer industries, the book will also be an important resource for university advanced courses.

"With almost 2000 references, this long-awaited revised edition is an indispensable source of high-quality information for everyone working in the field of fluorine chemistry"

CHEMISTRY WORLD, MARCH 2005

Contents:

- 1 General discussion of Organic Fluorine chemistry
- 2 Preparation of Highly Fluorinated Compounds
- 3 Partial or Selective Fluorination
- 4 The influence of Fluorine of Fluorocarbon groups on some reaction centres
- 5 Nucleophilic displacement of Halogen from Fluorocarbon systems
- 6 Elimination Reactions
- 7 Polyfluoroalkanes, Polyfluoroalkenes, and derivatives
- 8 Functional compounds containing Oxygen, Sulphur, or Nitrogen and their derivatives
- 9 Polyfluoroaromatic Compounds
- 10 Organometallic Reagents
- 11 References
- 12 Index

ISBN13: 9781405107877 • Pages: 424

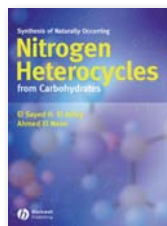
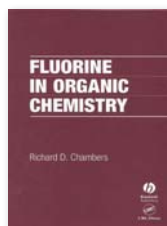
Publication date: 2004 • Binding: Hardback

Synthesis of Naturally Occurring Nitrogen Heterocycles from Carbohydrates

El Sayed El Ashry
Ahmed El Nemr

Carbohydrates are widely distributed in nature and widely available, and so are considered as a promising feedstock for the preparation of many organic chemical compounds. They are particularly useful in the preparation of nitrogen heterocycles because of their related structural characteristics and easy availability.

Synthesis of Naturally Occurring Nitrogen Heterocycles from Carbohydrates will review the recent literature dealing with use of carbohydrates as raw materials in the synthesis of these



materials. The text contains six chapters arranged according to the complexity of the heterocyclic compounds discussed, ranging from five to seven membered rings and from single to multiple fused rings. The book provides a detailed discussion of the various synthetic approaches to these compounds, using carbohydrate starting materials, and does not merely reference synthetic methodology but attempts to give as much detail as possible on the actual experimental conditions used, in such a way that the chemist can use the information directly to design a multi-step synthesis. It discusses the different approaches to the synthesis of a wide range of naturally occurring nitrogen heterocycles in a format that enables the reader to make comparisons and decisions on whether to use a certain procedure, to modify it, or to devise a new synthetic methodology.

"The book provides the reader with a wealth of detail on each synthesis, with the schemes "supported" by as much detail as could be expected on the experimental conditions used. Overall the book is a valuable source of information for those involved in the synthesis of nitrogen heterocycles and with a wealth of information and good indexes" [This book is] Recommended if you are involved in the field."

ORGANIC PROCESS RESEARCH AND DEVELOPMENT JOURNAL

Contents:

- 1 Five Membered Nitrogen Heterocycles
- 2 Five Membered Heterocycles with two Heteroatoms
- 3 Six Membered Nitrogen Heterocycles
- 4 Seven Membered Nitrogen Heterocycles
- 5 Fused Nitrogen Heterocycles

ISBN13: 9781405129343 • Pages: 464

Publication date: 2005 • Binding: Hardback

Chemical Synthesis of Natural Products

Edited by
Karl J Hale

This distinguished volume, edited by one of the key players in this area, provides an overview of the chemical synthesis of natural products at research and professional level. Authors concentrate on the major synthetic developments of the last decade, and the volume offers a point of entry to the more detailed research literature. Extensive literature references are included.

ISBN13: 9781841270395 • Pages: 442

Publication date: 2000 • Binding: Hardback

TEXTBOOK

Protecting Groups in Organic Synthesis

POSTGRADUATE CHEMISTRY SERIES

James R Hanson

This volume provides, at postgraduate student level, an accessible introduction to a topic of central importance in organic synthesis. It covers the main functional groups requiring protection in organic synthesis, explaining why a particular protecting agent works and how an agent should be chosen. Emphasis is on what the protecting group is doing chemically to the basic structure that it is protecting. Attention is given to removal of the protecting group.

A clear and thoughtful book, which concentrates on explaining the chemistry. It also provides a convenient point of entry to the research literature.

ISBN13: 9781850759577 • Pages: 138

Publication date: 1999 • Binding: Hardback

TEXTBOOK

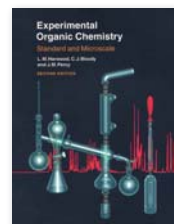
Experimental Organic Chemistry

STANDARD AND MICROSCALE

Second Edition

L M Harwood
C J Moody
J M Percy

This established text continues to provide a rigorous account of the principles and practice of experimental organic chemistry, taking students from their first day in the laboratory right through to research work. New to this edition, a microscale approach has been integrated into the entire text, alongside conventional manipulations, bringing it in line with current laboratory



practice. Maintaining the unique structure of the previous edition, the first half of the book surveys all aspects of safe laboratory practice, the use of a wide range of purification and analytical techniques, particularly spectroscopic analysis. The second half contains easy-to-follow experimental procedures, each designed to illustrate an important reaction type of basic principle of organic chemistry. Tried and tested over the past decade, these experiments are graded according to their complexity and many of these have microscale equivalents. Of prime importance, all aspects of health and safety in the laboratory have been updated according to the latest guidelines and are highlighted throughout the text.

"If you teach, supervise or perform experimental organic chemistry you will probably want this book beside you... This is a timely, attractively produced book and is excellent value"
CHEMISTRY IN BRITAIN

Contents:

- Preface
Part 1: Laboratory Practice
1 Safety in the Chemical Laboratory
2 Glassware and Equipment in the Laboratory
3 Organic Reactions: from Starting Materials to Pure Organic Product
4 Qualitative Analysis of Organic Compounds Spectroscopic Analysis of Organic Compounds Keeping Records
5 The Laboratory Notebook and Chemical Literature
Part 2: Experimental Procedures Introduction
6 List of Experiments
7 Experiments which can be Taken in Sequence Experiments which Illustrate Particular Techniques
8 Functional Group Interconversions
9 Carbon - Carbon Bond-Forming Reactions Appendix
10 Index of Chemicals
11 General Index

ISBN13: 9780632048199 • Pages: 728
Publication date: 1998 • Binding: Paperback

TEXTBOOK

Heterocyclic Chemistry

Fourth Edition

John Joule
Keith Mills

This book has so closely matched the requirements of its readership over the years that it has become the first choice for chemists all over the world.

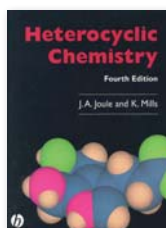
The fourth edition retains its original aims to teach the fundamentals of heterocyclic reactivity and synthesis in a way that is understandable to second- and third-year undergraduate chemistry students. It is important to emphasise that the more advanced sections of the book make it an important reference work for chemists at all levels who are working with heterocyclic compounds in industry.

New sections deal with heterocyclic aspects of combinatorial chemistry, bioprocessing, and conducting polymers.

Contents:

- Structures and Spectroscopic properties of Aromatic Heterocycles
- Reactivity of Aromatic Heterocycles
- Synthesis of Aromatic Heterocycles
- Typical reactivity of Pyridines, Quinolines and Isoquinolines
- Pyridines: Reactions and Synthesis
- Quinolines and Isoquinolines: Reactions and Synthesis
- Typical reactivity of pyrylium and Benzopyrylium ions, Pyrones and Benzopyrones
- Pyryliums, 2- and 4-pyrones: Reactions and Synthesis
- Benzopyryliums, Benzopyrones: Reactions and Synthesis
- Typical reactivity of the Diazines: Pyridazine, Pyrimidine and Pyrazine
- The Diazines: Pyridazine, Pyrimidine, and Pyrazine: Reactions and Synthesis
- Typical reactivity of Pyrroles, Thiophenes, and Furans
- Pyrroles: Reactions and Synthesis
- Thiophenes: Reactions and Synthesis
- Furans: Reactions and Synthesis
- Reactivity of Indoles, Benzo[b]thiophenes, Benzo[b]furans, Isoindoles, Benzo[c]thiophenes and Isobenzofurans
- Indoles: reactions and synthesis
- Benzo[b]Thiophenes and Benzo[b]furans: Reactions and Synthesis
- Isoindoles, Benzo[c]thiophenes and Isobenzofurans: Reactions and Synthesis
- Typical reactivity of 1,3- and 1,2-azoles; 1,3-Azoles: Imidazoles, Thiazoles, and Oxazoles: Reactions and Synthesis
- 1,2-Azoles: Pyrazoles, Isothiazoles, Isoxazoles: Reactions and Synthesis
- Purines: reactions and synthesis
- Heterocycles containing a ring-junction Nitrogen
- Heterocycles containing more than two hetero atoms
- Saturated and partially unsaturated heterocyclic compounds: reactions and synthesis
- Appendix: Answers to exercises
- Index

ISBN13: 9781405162852 • Pages: 608
Publication date: 2000 • Binding: Paperback



New for 2007

Organic Reactions in Water

PRINCIPLES, STRATEGIES AND APPLICATIONS

Edited by

U Marcus Lindström

Volatile organic solvents are the normal media used in both research scale and industrial scale synthesis of organic chemicals. Their environmental impact is significant, however, and so the development of alternative reaction media has become of great interest.

Developments in the use of water as a solvent for organic synthesis have reached the point where it could now be considered a viable solvent for many organic reactions. *Organic Reactions in Water* demonstrates the underlying principles of using water as a reaction solvent and, by reference to a range of reaction types and systems, its effective use in synthetic organic chemistry. Written by an internationally respected team of contributors, and with a strong focus on the practical use of water as a reaction medium, this book illustrates the enormous potential of water for the development of new and unique chemistries and synthetic strategies, while at the same time offering a much reduced environmental impact.

Contents:

- A Fifty Year Perspective on Chemistry in Water
- Structure and Properties of Water
- Acid Catalysis in Water
- Metal-Mediated C-C Bond Formations in Aqueous Media
- Pericyclic Reactions in Aqueous Media
- Catalyzed Reductions in Aqueous Media
- Oxidations
- Nucleophilic Additions and Substitutions in Water
- Reactions in Nearcritical Water
- Biocatalysis in Water
- Chemistry 'On Water' – Organic Synthesis in Aqueous Suspension
- Water as a Reaction Solvent - an Industry Perspective

ISBN13: 9781405138901 • Pages: 416

Publication date: Mar-2007 • Binding: Hardback



Chirality in Natural and Applied Science

Edited by

WJ Lough
IW Wainer

This book is for chemists in industry and in academic and research institutions. It is also for those in related disciplines such as pharmacy, physics and biochemistry. It covers the important applications of Chirality in industry and beyond, and its natural occurrence on a variety of scales from the nano to the macro. The importance of this field has continued to grow with strategically important applications in the pharmaceutical, flavour and fragrance industries. The launch of this title coincides with the 150th anniversary of the birth of Louis Pasteur who first described the phenomenon.

"This is a fine volume, with something for everyone, from the history of science buff and the hardcore theoretician to the practicing lab rat chemist. Editors Lough and Wainer have managed to assemble an excellent roster of experts."

THE ALCHEMIST

ISBN13: 9780632054350 • Pages: 336

Publication date: 2002 • Binding: Hardback

Investigation of Organic Reactions and their Mechanisms

Edited by

Howard Maskill

A range of alternative mechanisms can usually be postulated for most organic chemical reactions, and identification of the most likely requires detailed investigation.

Investigation of Organic Reactions and their Mechanisms will serve as a guide for the trained chemist who needs to characterise an organic chemical reaction and investigate its mechanism, but who is not an expert in physical organic chemistry.

Such an investigation will lead to an understanding of which bonds are broken, which are made, and the order in which these processes happen. This information and knowledge of the associated kinetic and thermodynamic parameters are central to the development of safe, efficient, and profitable industrial chemical processes, and to extending the synthetic utility of new chemical reactions in chemical and pharmaceutical manufacturing, and academic environments.

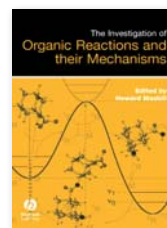
Written as a coherent account of the principal methods currently used in mechanistic investigations, at a level accessible to academic researchers and graduate chemists in industry, the book is highly practical in approach. The contributing authors, an international group of expert practitioners of the techniques covered, illustrate their contributions by examples from their own research and from the relevant wider chemical literature. The book covers basic aspects such as product analysis, kinetics, catalysis, and investigation of reactive intermediates. It also includes material on significant recent developments, e.g. computational chemistry, calorimetry, and electrochemistry, in addition to topics of high current industrial relevance, e.g. reactions in multiphase systems, and synthetically useful reactions involving free radicals and catalysis by organometallic compounds.

Contents:

- Introduction
- Investigation Of Reaction Mechanisms By Product Studies
- Experimental Methods For Investigating Kinetics.
- The Relationship Between Mechanism And Rate Law
- Reaction Kinetics In Multiphase Systems
- Electrochemical Methods Of Investigating Reaction Mechanisms
- Computational Chemistry And The Elucidation Of Mechanism
- Calorimetric Methods Of Investigating Organic Reactions
- The Detection And Characterization Of Intermediates In Chemical Reactions
- Investigation Of Reactions Involving Radical Intermediates
- Investigation Of Catalysis By Acids, Bases, Other Small Molecules, And Enzymes
- Catalysis By Organometallic Compounds

ISBN13: 9781405131421 • Pages: 392

Publication date: 2006 • Binding: Hardback



Green Reaction Media in Organic Synthesis

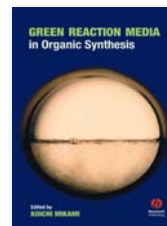
Edited by

Koichi Mikami

Green, sustainable chemistry involves the designing of chemical processes with a view to reducing or even eliminating the use and production of hazardous materials. Recent endeavors have focused on limiting the use of organic solvents and replacing them with new, environmentally benign media. The chemical industry is interested in these cost-effective, alternative solvents and processes.

This book provides a broad overview of the three most commonly used green reaction media. Directed at synthetic organic chemists working in academic and industrial laboratories, it will also serve as a textbook for graduate courses on green chemistry. Successful green reactions are considered, and experimental sections at the ends of the chapters provide important practical details, with illustrations of potential applications. Sufficient information is included to allow selection of the most appropriate medium. Extensively referenced, the volume offers a point of entry into the detailed literature.

"An unusual, but beneficial, aspect of this book is the experimental sections, which will be of value to those devising



experimental courses. Researchers in the field will find the historical context, as well as the reviews of the diverse types of reaction that can be carried out in these solvents, valuable".

CHEMISTRY AND INDUSTRY, 2006

Contents:

- 1 Introduction
- 2 Ionic Liquids
- 3 Fluorous Solvents
- 4 Supercritical CO₂

ISBN13: 9781405134026 • Pages: 200

Publication date: 2005 • Binding: Hardback

TEXTBOOK

An Introduction to Free Radical Chemistry

Andy Parsons

The past twenty years has seen an explosion of interest in free radicals as their pivotal role in both chemistry and biology has come to light. This introductory textbook aims to capture this excitement for advanced level undergraduates, with particular emphasis on the importance of radical reactions in organic synthesis. The book provides a gentle, stepwise introduction to the subject, taking the student from the basic principles of radical reactions through to their applications in industry and their role in biological and environmental processes, allowing the relevance of the subject to be grasped more easily.

Suitable for advanced level undergraduates and postgraduates in chemistry and biochemistry, the book will also be invaluable for research level scientists requiring an update in the area.

ISBN13: 9780632052929 • Pages: 248

Publication date: 2000 • Binding: Paperback

TEXTBOOK

Keynotes in Organic Chemistry

Andy Parsons

The development of university organic chemistry curricula and the trend towards modularisation of chemistry courses has driven the need for smaller, highly focussed and accessible organic chemistry textbooks, which complement the very detailed "standard texts", to guide students through the key principles of the subject.

This concise and accessible book provides organic chemistry notes for students studying chemistry and related courses at undergraduate level, covering core organic chemistry in a format ideal for learning and rapid revision. The material is organised so that fundamental concepts are introduced early, then built on to provide an overview of the essentials of functional group chemistry and reactivity, leading the student to a solid understanding of the basics of organic chemistry. Graphical presentation of information is central to the book, to facilitate the rapid assimilation, understanding and recall of critical concepts, facts and definitions.

Students wanting a comprehensive and accessible overview of organic chemistry to build the necessary foundations for a more detailed study will find this book an ideal source of the information they require. In addition, the structured presentation, highly graphical nature of the text and practice problems with outline answers will provide an invaluable framework and aid to revision for students preparing for examinations.

"Parsons has successfully distilled an entire 1200 page textbook to the essentials a student should take away from a full year of undergraduate organic chemistry"

"...this text provides an outline of what should be known and understood, including fundamental concepts and mechanisms"

"...the text can then allow the student to discern quickly which reactions/concepts they understand and which ones they don't."

JOURNAL OF CHEMICAL EDUCATION, 2004

ISBN13: 9780632059167 • Pages: 240

Publication date: 2003 • Binding: Paperback

TEXTBOOK

Stoichiometric Asymmetric Synthesis

POSTGRADUATE CHEMISTRY SERIES

Mark Rizzacasa
Michael Perkins

This volume provides, at postgraduate student level, an accessible introduction to stoichiometric asymmetric synthesis. The authors focus on stereoselective C-C bond formation in acyclic systems, with an emphasis on the use of chiral auxiliaries and reagents.

ISBN13: 9781841271118 • Pages: 248

Publication date: 2000 • Binding: Hardback

Microwave Assisted Organic Synthesis

Edited by
Jason Tierney
Pelle Lindström

The first reports on the application of microwaves in organic synthesis date back to 1986, but it was not until the recent introduction of specifically designed and constructed equipment, which countered the safety and reproducibility concerns, that synthetic application of microwaves has become established as a laboratory technique. Microwave assisted synthesis is now being adopted in many industrial and academic laboratories to take advantage of the novel chemistry that can be carried out using a variety of organic reaction types.

This book demonstrates the underlying principles of microwave dielectric heating and, by reference to a range of organic reaction types, its effective use in synthetic organic chemistry. To illustrate the impact microwave assisted organic synthesis can have on chemical research, case studies drawn mainly from the pharmaceutical industry are presented.

"The editors of this book have gathered a collection of expert practitioners in the area of microwave enhanced/assisted organic synthesis, each of whom have produced a series of chapters covering a variety of aspects of this burgeoning field"

Contents:

- 1 Theoretical aspects of microwave dielectric heating
- 2 Microwave Accelerated Metal Catalysis. Organic Transformations at Warp Speed
- 3 Heterocyclic chemistry using microwave-assisted approaches
- 4 Microwave-assisted Reductions
- 5 Speed and efficiency in the production of diverse structures: Microwave-assisted multicomponent reactions
- 6 Integrating Microwave Assisted Synthesis and Solid-Supported Reagents
- 7 Microwave-Assisted Solid-Phase Synthesis
- 8 Time-Savings Associated with Microwave-Assisted Synthesis: A Quantitative Approach
- 9 Scale-Up of Microwave-assisted Organic Synthesis

ISBN13: 9780632058167 • Pages: 296

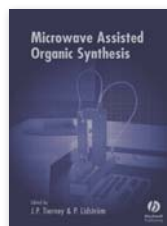
Publication date: 2005 • Binding: Hardback

Organofluorine Chemistry

Kenji Uneyama

The replacement of hydrogen with fluorine in organic molecules can profoundly influence their chemical and physical properties, leading to a range of compounds with highly desirable properties. These molecules are of interest across the wide spectrum of industrial and academic organic chemistry, so that organofluorine chemistry is economically highly important.

Organofluorine Chemistry will help chemists to develop a systematic knowledge of the chemistry of fluorine with a view towards its application in the design of new reactions and syntheses, and the creation of novel fluorinated molecules and materials. With initial chapters focusing on why fluorine creates such unique properties in organic compounds, the book then covers general reactions of fluorine. Coverage is chosen from



the recent research literature, concentrating on the development of novel bioactive compounds and catalytic ligands, and explaining, in the context of the initial chapters, how and why fluorine is so effective. With a final chapter covering the general synthetic chemistry of organofluorine compounds, the book is a cohesive summary of the fundamental principals of organofluorine chemistry.

"This book is well written and with plenty of useful references."

ORGANIC PROCESS RESEARCH AND DEVELOPMENT JOURNAL

Contents:

- 1 Fundamentals in Organic Fluorine chemistry
- 2 Unique reactions induced by fluorine
- 3 Reactions activated by a strong interaction between Fluorine and other atoms
- 4 Hydrogen bonding in Organofluorine compounds
- 5 Fluorinated ligands for selective Catalytic Reactions
- 6 Fluorine in Drug Designs
- 7 Methods for introduction of Fluorine-functionality into molecules (Summary from publications for the latest fifteen years)

ISBN13: 9781405125611 • Pages: 352

Publication date: 2006 • Binding: Hardback

Catalysis in Asymmetric Synthesis

Jonathan Williams

Asymmetric synthesis has become a major aspect of modern organic chemistry. The importance of stereochemical purity in pharmaceutical products has been one driving force in the quest for improved control over the stereochemical outcome of organic reactions. Asymmetric catalysis is an important aspect of asymmetric synthesis, and one that has seen tremendous activity over the past decade. This book is planned from the point of view of the synthetic organic chemist, i.e. by transformation rather than on the basis of the organometallic chemistry. The emphasis is on non-enzymatic methods of asymmetric catalysis, although key references to enzyme-catalysed reactions have been incorporated where appropriate.

"A wonderful overview.... This book could well become the first stop in the search for further information about a particular asymmetric process"

CHEMISTRY IN BRITAIN

Contents:

- 1 Introduction
- 2 Reduction of alkenes
- 3 Reduction of ketones and imines
- 4 Epoxidation of alkenes
- 5 Further oxidation reactions
- 6 Nucleophilic addition to carbonyl compounds
- 7 The aldol and related reactions
- 8 The Diels-Alder reaction and related transformations
- 9 Catalytic reactions involving metal carbenoids
- 10 Catalytic carbon-carbon bond-forming reactions
- 11 Conjugate addition reactions
- 12 Further catalytic reactions
- 13 Index

ISBN13: 9781850759843 • Pages: 208

Publication date: 1999 • Binding: Hardback

See also...

See also **At a Glance Textbooks** pages 3-4

Eames – Stereochemistry at a Glance

Harwood – Organic Chemistry at a Glance

Joule – Heterocyclic Chemistry at a Glance

Moloney – Reaction Mechanisms At a Glance

Stanforth – Natural Product Chemistry at a Glance

See also **Chemical Engineering** pages 9-11

Clark – Handbook of Green Chemistry and Technology



Journals

Acta Crystallographica A

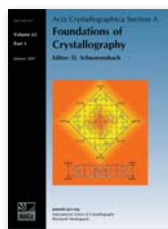
PUBLISHED ON BEHALF OF THE INTERNATIONAL UNION OF CRYSTALLOGRAPHY

Editor-in-Chief:
Dr Gernot Kosterz

Aims & Scope

Acta Crystallographica Section A: Foundations of Crystallography publishes papers reporting fundamental advances in all areas of crystallography in the broadest sense. The central themes are, on the one hand, experimental and theoretical studies of the properties and arrangements of atoms, ions and molecules in condensed matter, ideal or real, and of their symmetry and, on the other, the theoretical and experimental aspects of the various methods to determine these arrangements.

Publishes 6 issues per annum



Acta Crystallographica B

PUBLISHED ON BEHALF OF THE INTERNATIONAL UNION OF CRYSTALLOGRAPHY

Editor-in-Chief:
Dr Gernot Kosterz

Aims & Scope

Acta Crystallographica Section B: Structural Science publishes papers in which structure is the primary focus of the work reported. The central themes of Structural Science are the acquisition of structural knowledge from novel experimental observations or from existing data, the correlation of structural knowledge with physico-chemical and other properties, and the application of this knowledge to solve problems in the structural domain. Structural Science has broad chemical coverage, encompassing metals and alloys, inorganics and minerals, metal-organics and purely organic compounds.

Publishes 6 issues per year.



Acta Crystallographica C

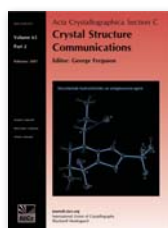
PUBLISHED ON BEHALF OF THE INTERNATIONAL UNION OF CRYSTALLOGRAPHY

Editor-in-Chief:
Dr Gernot Kosterz

Aims & Scope

Acta Crystallographica Section C: Crystal Structure Communications is a rapid communication journal for the publication of concise reports on crystal and molecular structures. The numerical and text descriptions of each structure are submitted to the journal electronically as a Crystallographic Information File (CIF) and are checked and typeset automatically prior to peer review. The published paper contains an encapsulation of the data that are essential to understanding the main features of the study.

Publishes 6 issues per year.



Acta Crystallographica D

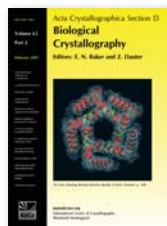
PUBLISHED ON BEHALF OF THE INTERNATIONAL UNION OF CRYSTALLOGRAPHY

Editor-in-Chief:
Dr Gernot Kosterz

Aims & Scope

Acta Crystallographica Section D: Biological Crystallography welcomes the submission of papers covering any aspect of structural biology with a particular emphasis on the structures of biological macromolecules and the methods used to determine them. Reports on new protein structures are particularly encouraged, as are papers on crystallographic binding studies, structural analysis of mutants and other structure-function studies.

Publishes 6 issues per year.



Chemical Biology and Drug Design

Editor-in-Chief:
Tomi K. Sawyer

Aims & Scope

Chemical Biology & Drug Design is a peer-reviewed scientific journal that is dedicated to the advancement of innovative science, technology and medicine with a focus on the multidisciplinary fields of chemical biology and drug design. It is the aim of *Chemical Biology & Drug Design* to capture significant research and drug discovery that highlights new concepts, insight and new findings within the scope of chemical biology and drug design.

Publishes 12 issues per year.



Coloration Technology

PUBLISHED ON BEHALF OF THE SOCIETY OF DYERS AND COLORISTS

Academic Editor:
David Hinks
(Associate Professor NC State University)

Aims & Scope

Coloration Technology aims to promote fundamental understanding and creativity in the science and technology of coloured materials by providing a medium for communication of peer-reviewed research papers of the highest quality.

Publishes 6 issues per annum



FEBS Journal

PUBLISHED ON BEHALF OF THE FEDERATION OF EUROPEAN BIOCHEMICAL SOCIETIES.

Editor-in-Chief:
Richard Perham

Aims & Scope

FEBS Journal is an international journal devoted to the rapid publication of full-length papers describing original research in all areas of the molecular life sciences such as bioenergetics, developmental biology, genomics, lipids, molecular cell biology, nanoscience and proteomics to name a few.

Publishes 24 issues per annum

Bespoke website www.febsjournal.org



International Journal of Applied Ceramic Technology

PUBLISHED ON BEHALF OF THE AMERICAN CERAMIC SOCIETY (ACERS)

Editor-in-Chief:
Hua-Tay Lin

Aims & Scope

The *International Journal of Applied Ceramic Technology* publishes cutting edge applied research and development work focused on commercialization of engineered ceramics, products and processes. The publication also explores the barriers to commercialization, design and testing, environmental health issues, international standardization activities, databases, and cost models.

Publishes 6 issues per annum



International Journal of Cosmetic Science

PUBLISHED ON BEHALF OF THE SOCIETY OF COSMETIC SCIENTISTS AND THE SOCIÉTÉ FRANÇAIS DE COSMÉTOLOGIE

Edited by
Anthony Rawlings
Claude Dubief

Aims and Scope

The journal is bridging the gap between fundamental and applied cosmetic science & dermatology, bringing readers high quality interdisciplinary research in the development of skin & hair care ingredients & formulations.

Publishes 6 issues per annum



Journal of Applied Crystallography

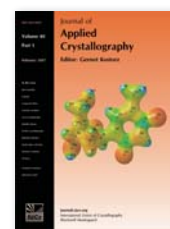
PUBLISHED ON BEHALF OF THE INTERNATIONAL UNION OF CRYSTALLOGRAPHY

Editor-in-Chief:
Dr Gernot Kosterz

Aims & Scope

Journal of Applied Crystallography covers a wide range of crystallographic topics from the viewpoints of both techniques and theory. The journal presents papers on the application of crystallographic techniques and on the related apparatus and computer software. For many years, the *Journal of Applied Crystallography* has been the main vehicle for the publication of small-angle scattering papers and powder diffraction techniques.

Publishes 6 issues per year.



Journal of the American Ceramic Society

PUBLISHED ON BEHALF OF THE AMERICAN CERAMIC SOCIETY (ACERS)

Edited by
David J. Green
David W. Johnson Jr
Lisa Klein

Aims & Scope

The *Journal of the American Ceramic Society* contains records of original research that provide or lead to fundamental principles in the science of ceramics and ceramic-based composites. These papers include reports of the discovery of new phases, phase relationships, processing approaches and microstructures that relate to ceramic materials and processes.

Publishes 12 issues per annum



Journal of Forensic Sciences

PUBLISHED ON BEHALF OF THE AMERICAN ACADEMY OF FORENSIC SCIENCES

Editor-in-Chief:
Michael Peat

Aims & Scope

The Journal is devoted to the publication of original investigations, observations, scholarly inquiries, and reviews in the various branches of the forensic sciences. These include Pathology and Biology, Toxicology, Psychiatry and Behavioral Sciences, General, Odontology, Physical Anthropology, Jurisprudence, Criminalistics, Questioned Documents, and Engineering Sciences.

Publishes 6 issues per annum



Journal of Neurochemistry

PUBLISHED ON BEHALF OF THE INTERNATIONAL SOCIETY FOR NEUROCHEMISTRY

Edited by
Sean Murphy and
Anthony J. Turner

Aims & Scope

The *Journal of Neurochemistry* is the leading source for current research worldwide on the molecular, chemical, and cellular biology of the nervous system. Each issue contains dozens of full-length presentations of significant original findings, written by investigators at leading medical and research institutions around the world.

Publishes 24 issues per annum



Journal of Synchrotron Radiation

DISTRIBUTED ON BEHALF OF THE INTERNATIONAL UNION OF CRYSTALLOGRAPHY

Edited by
A. Kvik
D.M. Mills
T.Ohta

Aims & Scope

The *Journal of Synchrotron Radiation* aims to provide a focus in this rapidly expanding area. The topics covered by the journal include source technology, instrumentation and techniques over all the spectral ranges relevant to synchrotron radiation research. It thus draws together the full breadth of interests and skills of the synchrotron radiation community.

Publishes 6 issues per annum



Photochemistry and Photobiology

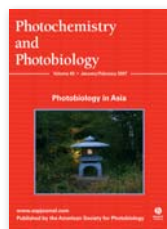
PUBLISHED ON BEHALF OF THE AMERICAN SOCIETY FOR PHOTOBIOLOGY

Editor-in-Chief:
John D. Simon

Aims & Scope

Photochemistry and Photobiology publishes original research articles and reviews on current topics in photoscience. Topics span from the primary interaction of light with molecules, cells, and tissue to the subsequent biological responses, representing disciplinary and interdisciplinary research in the fields of chemistry, physics, biology, and medicine.

Publishes 6 issues per annum



Pigment Cell Research

THE OFFICIAL JOURNAL OF THE INTERNATIONAL FEDERATION OF PIGMENT CELL SOCIETIES

Editor-in-Chief:
Colin R. Goding
Marie Curie Research Institute,
Oxford, UK

Aims & Scope

Pigment Cell Research publishes manuscripts on all aspects of pigment cells including development, cell and molecular biology, genetics, the chemistry of melanin biosynthesis and structure, and pigment cell-related diseases including vitiligo and melanoma. Especially welcome are papers that use the melanocyte system to answer questions of general biological relevance. Papers that are purely descriptive or make only minor advances to our knowledge of pigment cells are not suitable for this journal.

6 issues

Bespoke website: www.pigment.org



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