

formidable array of topics covering all aspects of polymer science and engineering. This includes the materials (both natural and synthetic) and their properties, synthesis and reactions, analysis and characterisation. Polymer engineering, processing, uses and economics are of fundamental importance in the world today. To cover all of these subjects comprehensively requires a compendium of numerous volumes: indeed, this is the role of the 19-volume, world-renowned 2nd Edition of the *Encyclopedia of Polymer Science and Engineering*.

The *Concise Encyclopedia of Polymer Science and Engineering* is a distillation of the many-volume original landmark publication by professional science writers, reviewed and updated by the original authors and their colleagues. The compact desk version contains all of the subjects in the original work: key data, tables and facts are crafted into a complete and self-contained encyclopedia. Links to the 19-volume edition ensure ready access to bibliographic citations and a much wider coverage of any subject via carefully selected references and hundreds of tables, charts and figures.

The quality of this book undoubtedly reflects the five years' development by writers, authors and editorial staff. It is highly recommended as an indispensable ready reference for students, scientists, technologists and engineers: in short, for anyone seeking to answer questions on any aspects of polymer science and engineering.

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Environmental Chemical Analysis; B.B. Kebbekus, S. Mitra; Blackie Academic & Professionals, Glasgow, 1998, 330 pages, ISBN 0-7514-0456-X £24.99

As knowledge of the Earth's chemical environment has increased, there is still ever-increasing concern on the role of chemical elements in the synthesis and decomposition of natural materials, including the changes specifically brought about by human activities. This has led to significant responsibilities to study the effects of pollutants and to regulate and reduce their discharge.

This scientifically sound publication aims to provide a brief introduction to Environmental Chemistry. The book concentrates on the basic principles of sampling as well as sample preparation, and on the chemical principles under-

lying contemporary analytical techniques, hence offering the reader a thorough grounding in the increasing discipline of Environmental Chemistry.

The literature begins by covering the important topics of sampling, sample preparation, basic statistics, and the operating principles and descriptions of major techniques, for example, spectroscopy. In the later chapters, the major environmental matrices, air, water, soils, and solids are explored in more detail.

Aiding the literature are useful references to key sources, as well as edifying tables, diagrams, graphs and useful study questions. Each of these illustrations are well-presented, relevant, as well as scientifically accurate.

As this well produced literature assumes only an elementary knowledge of Chemistry, it is focused at students in all disciplines of Environmental Science and Engineering.

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Modern Derivatization for Separation Sciences; T. Toyo'oka; John Wiley and Sons, Chichester, 1999, xiv + 298 pages, ISBN 0-471-98364-0, £80.00

Biologically active compounds, used for medicines, agrochemicals, food additives, biogenic amines and flavors, are fairly difficult to determine with accuracy and precision, due to the fact that they are usually present in minute amounts. The choice of a suitable method that provides good reproducibility is essential to obtain correct results. Derivatization is the essential technique in separation sciences using thin-layer chromatography (TLC), liquid chromatography (LC) and capillary electrophoresis (CE), as well as gas chromatography (GC). The development of various types of detection instruments such as UV–VIS, fluorescence (FL), chemiluminescence and electrochemical has allowed the development of various reagents to increase separability, selectivity and sensitivity using high-performance liquid chromatography (HPLC).

Modern Derivatization for Separation Sciences concentrates on recent advances in chemical derivatization for the separation sciences mainly by GC, LC and CE. Emphasis has been placed on practical use of detecting and separating compounds, and the characteristics of the various approaches are critically discussed. Choice, handling and applications of suitable reagents for reactive functional groups are described in detail.

The accuracy and precision of the result obtained is dependent on the pre-treatment method, especially in trace analysis. Therefore, a general introduction of the pre-treatment of real samples such as biological, food, and environmental and choice of suitable reagents are presented in Chapter 1. In Chapters 2 and 3, homogeneous reactions suitable for the derivatization of various functional groups of trace analytes with UV–VIS and FL labels are described in detail. Pre- and post-column applications and typical derivatization procedures are given for each functional group. Chapter 4 deals with the chemiluminescence detection of fluorophores derived from the fluorogenic reaction and fluorescence labelling reaction. In Chapter 5, the theory of electrochemical reactions and derivatization for electrochemical detection are described, together with some examples. The book, backed by extensive literature reference, offers a valuable starting point for more detailed investigations.

The goal of *Modern Derivatization for Separation Sciences* to provide an easy-to-read overview of various

derivatization methods that are available for trace analysis of biologically important substances, has been achieved. The methodologies suggested in this book are very useful in the life sciences, such as drug discovery and in the environmental, pharmaceutical, clinical and food industries. It is highly recommended for biochemists, separation scientists as well as postgraduate researches in these areas.

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