

commercially available microwave reactors that are dedicated for microwave-assisted organic synthesis (chapter 3). A brief summary of alternative processing techniques, the use of microwave reactors and general comments on reaction optimization are presented in the next two chapters.

Two literature surveys, Part A, General organic synthesis, and Part B, Combinatorial and high-throughput synthesis methods, constitute the major part of the book. Part A summarizes recent applications of controlled microwave heating technology in organic synthesis. Organic reactions, from Heck to Pauson-Khand reactions and from Diels-Alder reactions to Michael additions, are discussed in a systematic manner. Afterwards syntheses of N-, O-, and S-containing five- and six-membered heterocyclic ring systems are also presented in this chapter. Part B mainly focuses on the solid-phase organic synthesis, peptide synthesis, multicomponent reactions, and the use of polymer-supported reagents, catalysts, and scavengers. The final chapter presents an outlook and conclusions.

This book is an indispensable information source for organic and medicinal chemists in academia, as well as those in the chemical and the pharmaceutical industry. It provides the reader a well-structured, up-to-date, and exhaustive overview of known synthetic procedures involving the use of microwave technology. Some chapters of this book are sufficiently convincing as to encourage scientists not only to use microwave synthesis in their research, but also to offer training for their students or co-workers.

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Available online 28 November 2005

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doi:10.1016/j.carbpol.2005.08.037

J. Cazes, editor. *Ewing's Analytical Instrumentation Handbook*, Marcel Dekker, NY, USA, 2005 (xxiv + 1037 pp., £145.00, ISBN 0-8247-5348-8)

Analytical methods are applied in a number of different industrial processes. These may be employed for a variety of purposes such as research, development, manufacturing monitoring or quality control practices. Thus, analytical techniques play a vital role in all the industrial processes. Science has witnessed a rapid expansion of all types of analytical methods, and different instruments have come into picture with the advancement of technology. This rapidly growing area has brought together scientists from different disciplines to develop techniques, which are highly sensitive, accurate and less time consuming.

Ewing's Analytical Instrumentation Handbook provides a basic introduction, theory and methodology of different instrumental techniques. The book opens with a basic chapter on the laboratory use of computers. The topics of flow injection/sequential injection analysis, inductively coupled plasma optical emission spectrometry, atomic absorption spectrometry, spectrophotometers, molecular fluorescence and phosphorescence have been described in the subsequent chapters. The vibrational spectroscopy, photoacoustic spectroscopy, chiroptical spectroscopy, nuclear magnetic resonance, electron magnetic resonance and auger electron spectroscopy have been discussed in the individual chapters.

Mass spectrometry (MS) instrumentation has undergone a dramatic increase in popularity with the recognition that MS is an invaluable tool in biological analysis. The separate chapters have been included on the mass spectrometry, thermoanalytical instrumentation, electrochemical stripping and electrochemical lab-on-a-chip in the book. Biosensors are analytical devices that use a biological or biologically derived material immobilized at a transducer to measure one or more analytes. Biosensor technology has also been given in a summarized form.

Chromatographic methods are unique in that they possess dual capabilities, the mixture is separated into components and simultaneously the quantity of each component present is measured. Different chromatographic techniques (high performance liquid chromatography, gas chromatography, supercritical fluid chromatography, gel permeation and size exclusion chromatography etc.) have been described in individual chapters. The validation of chromatographic methods has been discussed in the last chapter.

In conclusion, the book provides a detailed description of the most frequently utilized analytical instrumental techniques and it can be a unique resource not only to the students and academicians but also the researchers working in the area of analytical techniques.

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Available online 23 November 2005

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doi:10.1016/j.carbpol.2005.08.032

K. S. Birdi, *Scanning Probe Microscopes: Applications in Science and Technology*, CRC Press, Boca Raton, FL, USA, 2003 (314 pp., £85.00, ISBN 0-8493-0930-1).

Mankind has always been keen to understand all kind of natural phenomena. Typical of all humans, seeing is believing,