additional options such as biological sequence searching, a field where SciFinder® and SciFinder® Scholar differ. Specific clues on how to search for polymers, salts, mixtures, biomolecules, etc. are given in the appendix and in Chapter 5.

There are different price models for SciFinder. However, for most users it does not matter how long they are logged onto the system and how many records are displayed. This gives cause for strategies recommended by the author based on analysis and refinement of preliminary search results. The various tools for this approach of trial and revision, including histogram statistics on answer sets, are outlined in Chapter 4. In the introduction to Chapter 6 the author remarks "There are a very large number of ways to describe, and hence also to find, information on reactions!" To cope with this, a set of five crucial questions is given. Depending on the answers, different search strategies should be applied. Despite the "intelligent" support mechanism acting in the background of SciFinder, a clear definition of a query is essential. Without that, in substructure searching for example, one might even exceed the limits of the system. The tables and examples in the appendix form a straightforward source of background information.

Likely users of the book range from students, who will thus understand the differences between Internet search engines and a highly specialized tool like SciFinder, to scientists who need a solid base of information for their research, and to experienced STN specialists who wish to transfer their search strategies to this new and possibly unfamiliar approach to information retrieval.

Everyone working with SciFinder® or SciFinder® Scholar should have a copy of this very helpful book on his or her desk. Even occasional browsing and looking up can improve the skills in information retrieval considerably.

Simon Geiger
University Library
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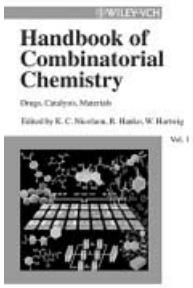
Handbook of Combinatorial Chemistry. Vols. 1+2. By *Kyriacos C. Nicolaou, R. Hanko* and *W. Hartwig.* Wiley-VCH, Weinheim 2002. 1114 pp., hardcover € 389.00.—ISBN 3-527-30509-2

The rise of combinatorial chemistry as a powerful tool in all aspects of preparative chemistry has led to the publication of a considerable number of textbooks, including several very good ones (for a comparative review of books on this subject see S. Bräse et al., *Angew. Chem. Int. Ed.* **2001**, *40*, 255–257). For the work reviewed here the editors have recruited a competent team of authors from industry and academia to write a compendium, which in 35 chapters and 1100 pages aims to give a comprehensive overview of all aspects of combinatorial chemistry, ranging from the life sciences to the materials sciences. They have achieved this goal masterfully.



In the first part of the handbook, the fundamental concepts and methods of combinatorial chemistry in solution and on a solid phase are outlined in six excellent chapters. Chapters that are especially outstanding in their information content are those about support materials (R. Haag et al.), encoding techniques (T. Krämer et al.), linkers (S. Bräse and S. Dahmen), and automation (M. Bauser and H. Stakemeier).

In the second part of Volume 1 (383 pp.), different reaction types applied in combinatorial chemistry, either in solution or on a solid phase, are reviewed in 14 chapters (e.g., radical reactions, nucleophilic substitution, addition, etc). In this section the quality of the individual chapters varies considerably. While some reaction types are presented superficially through a mere selection of notable literature examples, others are discussed in too much detail, which is inconsistent with the general idea of the handbook. A proof that it is indeed possible to find an optimal compromise is seen in Chapter 13 dealing with the chemistry of the carbonyl group (T. Wünberg). There the reader finds a competent and critical description of the subject, together with useful tables giving the most widely used reaction conditions for several bond-forming reactions, classified according to substrate types.

Volume 2 begins with chapters about the application of combinatorial chemistry in the library synthesis of natural products, heterocycles, and oligosaccharides, complemented by a well-written account of multicomponent reactions.

The following section, dealing with the molecular design of combinatorial libraries, is another good reason to purchase this book, as this important aspect has been widely neglected by most books on combinatorial chemistry so far. In particular Chapter 25 about design criteria (J. Pernerstorfer) contains a clearly understandable and informative introduction to diversity criteria, drug-likeness, and unwanted reactivities in drug libraries. A highly interesting case study of the use of combinatorial chemistry in the pharmaceutical industry is given by Hinzen et al. in Chapter 28, which describes the development of an erythropoietin sensitizer.

The last section of the book (250 pp.) describes the contributions of combinatorial chemistry in process development, in the discovery of new homogeneous and heterogeneous catalysts, and in materials science. Although the individual chapters contain much detail and a lot of expertise (the majority of these chapters are authored by H. W. Weinberg and co-workers from Symyx), the considerable amount of repetition between chapters is unnecessary and annoying. Finally the book ends with a good overview of combinatorial biosynthesis and the biological production of DNA, RNA, and peptide libraries.

The favorable overall impression of this handbook proves that the editors have succeeded in guiding the many authors from different backgrounds to write a largely coherent and readable standard work on combinatorial chemistry, which fulfills the promises given in its title. With regard to the contents, our only regret is that no chapter about analytical methods and monitoring of solid-phase reactions has been included in the book. The literature has been covered through 2000, in some instances

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even up to 2001, and the text can also be accessed through a 15-page subject index. The *Handbook of Combinatorial Chemistry* is highly recommended to all who are interested in this subject.

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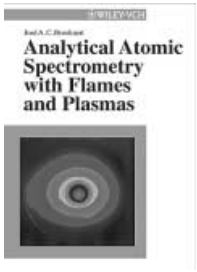
Analytical Atomic Spectrometry with Flames and Plasmas. Edited by *José A. C. Broekaert*. Wiley-VCH, Weinheim 2002. 364 pp., hardcover € 89.00.—ISBN 3-527-30146-1

Atomic spectroscopy and spectrometry are some of the oldest methods for structural and quantitative analysis, and their origins can be traced back to the fundamental work of Kirchhoff, Bunsen, and Fraunhofer. Atomic spectrometry in particular has undergone rapid developments in the last 10–15 years as a result of the introduction of new methods of excitation and detection, resulting not only in greatly improved detection sensitivity but in a widespread transition from monoelement to multielement analysis. Consequently, no analytical laboratory that is engaged in elemental analysis can nowadays afford to be without methods such as ICP-OES and ICP-MS.



J. A. C. Broekaert has performed a valuable service in writing this comprehensive monograph on the developments that have been achieved in these techniques and the prospects for the future. The structure of the book follows the classical pattern for works on analytical methods, with a clear distinction between the discussion of excitation sources (arc discharges, sparks, flames, graphite cuvettes, plasmas, glow discharges, laser microplasmas) and that of the methods for detecting the resulting excitation and/or ionization (by absorption, emission, fluorescence, or mass spectrometry). Against that systematic background the book then goes on to describe how the different combination possibilities are achieved in practice.

After considering the various methods for preparing and introducing the sample (pneumatic or ultrasonic atomization, hydride techniques, thermal or electrothermal vaporization, slurry techniques, ablation, sputtering, etc.), the author discusses the many different methods for determining elements, with their theoretical background, and describes their practical implementation, their range of applications, and the potential for further development. The overall result is a comprehensive monograph with a thoroughly systematic arrangement of the contents, supported by over 600 literature references, providing a wealth of information for practicing analysts in scientific fields.

The last two chapters are concerned with sample preparation and with comparisons between atomic spectroscopy and other methods. These are less convincing than the rest of the work. They give the impression of additions that have not been completely thought out, as they do not take into account the principles of the "analytical process", and fail to address differences in the nature of analytical problems and sample materials. These should be omitted from future editions, since a thorough discussion of how the methods described here are to be incorporated into overall analytical strategies falls outside the aims and scope of this monograph.

Sometimes points of detail are not explained as clearly as one would wish, and consequently there are many instances where the reader may need to refer to the original publications. For example, the rather brief treatment of Laser enhanced ionization (LEI) spectroscopy does not include a discussion of the differences between the use of continuous-wave and pulsed lasers. However, the book's main defect is the outdated layout. The bland and monotonous appearance of the text, without the use of emphases or visual structure, is uninteresting and detracts considerably from the experience of reading it. Also the figures deserved better preparation to improve their appearance.

However, these criticisms do not diminish the good scientific content of this excellent and comprehensive monograph, but only detract from the experience of working with it.

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Karl Marx und Friedrich Engels. Naturwissenschaftliche Excerpte und Notizen. Band 31, Mitte 1877 bis Anfang 1883. Issued by the International Marx–Engels Foundation, edited by *Anneliese Griese, Friederun Fessen, Peter Jäckel* and *Gerd Pawelzig*. Oldenbourg & Akademie Verlag, Berlin 1999. 1055 pp., hardcover € 158.00.—ISBN 3-05-003399-1

It is beyond question that Karl Marx (1818–1883) ranks as one of the greatest prolific writers (and prolific readers) of all time, as he left behind no less than 21600 pages of printed text, and notes on nearly every field of science in the margins of 35000 pages of books, not to mention the many thousands of letters that he wrote. There have been several attempts to systematically classify, evaluate, and annotate this enormous (and still not yet fully revealed) lifetime's work. There was an initial attempt in the 1920s, then in the 1970s work began in the GDR on compiling a "Marx-Engels-Gesamtausgabe" (MEGA), of which 40 volumes had already appeared by 1989, the famous "Blue Volumes", which also found their way into the bookshelves of many West German students. That project might have ended completely with the fall of European socialism as an established state entity, but in 1990 the Amsterdam Institute for Social History and the Karl-Marx-Haus of the Friedrich Ebert Foundation together set up the International Marx–Engels Foundation (IMEF), which then took on the responsibility for a third attempt at producing a MEGA version, with the detailed work being undertaken by a special working party of the Berlin–Brandenburg Academy of Sciences. Of the planned 114 volumes (expected completion date

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