

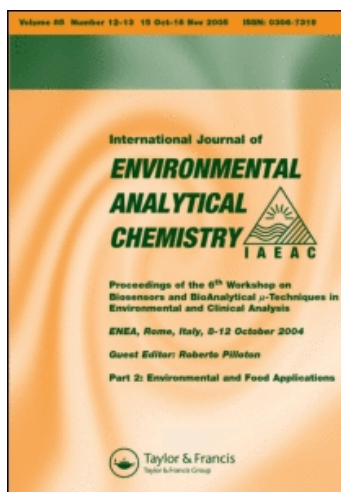
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Book Reviews

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Book Reviews

CHROMATOGRAPHY, Part A: Fundamentals and Techniques; Part B: Applications, edited by Erich Heftmann, U.S. Department of Agriculture, Berkeley, CA, U.S.A. Journal of Chromatography Library, Vols. 22A and B. Part A: 1983 xxii + 388 pages, US\$83.00 (in USA and Canada) Dfl. 325.00 (rest of world), ISBN 0-444-42043-6. Part B: 1983 xviii + 564 pages, US\$138.25 (in USA and Canada) Dfl. 325.00 (rest of world), ISBN 0-444-42044-4, ISBN 0-444-42045-2 (two-volume set).

These two books, A and B, give a survey over theory and application of chromatographic methods.

In volume A the chapters 1 and 2 are dealing with the history and classification of chromatographic methods. They could easily be condensed, since there are already a lot of books existing, which deal with these topics. The section on classification is rather confusing.

The theory of chromatography in chapter 3 is exhaustively and clearly presented. Considering the importance of reversed phase chromatography, a somewhat more extended treatment of the respective theories would have been desirable. Chapter 4 deals with column chromatography and especially HPLC techniques. Various column systems are discussed including the first attempts about using microbore columns. Different pump types and injection devices are presented. However, the detection principles are only briefly discussed and one would wish to read more about newer detection principles.

Paper and thin layer chromatography are discussed in chapter 5. As classical TLC has already been described extensively in various other sources and specialized books, more attention should have been focussed, for example to techniques like HPTLC or "overpressurized TLC".

The principles of GC are well and clearly described in chapter 6. The different kinds of detection principles are well explained.

Chapter 7 deals with ion exchange, liquid exchange and ion pairing chromatographic techniques. The principle and application of ion exchange techniques are competently treated and much in detail, unfortunately, only a small portion is dedicated to ion pairing chromatography, which has become a potent competitor for regular ion exchange chromatography.

Chapter 8 gives an excellent introduction into gel chromatography. Packing materials for gel chromatography in classical columns are discussed in great detail, however, size exclusion chromatography on HPLC scale is barely mentioned. The principle of electrophoresis and related methods like isotachophoresis and focusing methods are described in chapter 8. The reader is first confronted with a lot of theory but is also informed about the different electrophoresis principles and applications.

The second volume, part B, gives example for the application of chromatographic methods in different fields. Generally it can be said, that this book (B) gives a good review on the extensive application field of chromatography but the references are not, and can probably not be up-to-date in all areas. Nevertheless, the reader, who is entering in any field gets a lot of initial instructions by reading the related chapters.

To summarize, the first part (A) of the two-volume work is a bit inhomogeneous and in some areas not exhaustive enough for advanced workers.

The second volume (B) is obviously the stronger and more interesting part and will provide, as in earlier issues of this reference work, a valuable source of information.

In spite of some of the shortcomings we feel that the book is a worthwhile addition to the bookshelf of any practicing chromatographer and scientist interested in problem solving via chromatographic techniques.

G. GÜBITZ and R. W. FREI

INSTRUMENTAL LIQUID CHROMATOGRAPHY by N. A. Parris, *Journal of Chromatography Library*, 27, 1984 xiv+432 pages, US\$86.50, Dfl. 225.00, ISBN 0-444-42061-4

Following the tradition of the first, well received edition this book is a good introduction for starters in HPLC but contains also useful advice for experienced chromatographers.

After a brief introduction to chromatographic theory a useful survey on column materials and packing techniques is given.

The chapter on instrumentation gives to the reader a good overview on various solvent delivery systems, injection systems, connections and other hardware items in an LC-line. The chapter dealing with detectors could, in our opinion, be treated somewhat more extensively. Newer detection principles are only very briefly mentioned. Especially the now well accepted and commercialized combination with reaction detectors has not been mentioned at all.

Chapter 7 gives useful practical instructions for the choice of appropriate chromatographic systems.

Chapters 8 to 12 are short introductions to the different chromatographic principles and give practical advice for the choice of suitable sorbents and mobiles phases, respectively. A useful table with commercially available packing materials and the manufacturers is included.

Many useful hints are given for the application of HPLC to qualitative and quantitative analysis as well as trace analysis. This chapter is followed by a discussion dealing with preparative HPLC.

A choice of some application examples for different groups of compounds is given in the last chapter.

To summarize, this is a useful book for beginners, although more discussion about aspects of column coupling and microbore systems would be useful even for a starter text.

Nevertheless, the amount of practical information contained in this work make it well worthwhile to have it on any chromatographers bookshelf.

G. GÜBITZ and R. W. FREI

SOLVATION, IONIC AND COMPLEX FORMATION REACTIONS IN NON-AQUEOUS SOLUTIONS, by Kalman Burger, L. Eötvös University, Budapest, Hungary. Studies in Analytical Chemistry, Vol. 6. Elsevier Scientific Publishing Co., Amsterdam and New York, 1983, 268 pages, Dfl. 145.00. ISBN 0-444-99697-4.

Most chemists work with solutions rather than with gases or solids, yet solvation phenomena are rarely discussed in any detail in standard texts. This book presents a general review of solvation, the methods available for studying it, and of solvent effects on chemical reactions. It begins with a classification of solvents, followed by a very brief review of theoretical studies of solvation. The two longest chapters (corresponding to half the length of the book) cover the various empirical classifications of donor-acceptor powers of solvents and the experimental methods for studying solutions. The final third deals successively with the effects of solvents on the stabilities and kinetics of complex formation reactions, solvation in mixed solvents, and the experimental aspects of purification and analysis of solvents. An assessment of future trends in solvation research concludes the book.

Although it is published in a series on analytical chemistry, the book is of general interest to chemists; despite the title aqueous solutions are not excluded from the discussion, although there is little mention of the more polar inorganic solvents such as liquid ammonia, sulphur dioxide, etc. The study of solvation is essentially an empirical one, theoretical approaches being limited to the simplest of systems, and I would have preferred the chapter on experimental methods to have preceded the discussion of the phenomenological solvation parameters obtained from these methods. The author gives a commendably broad coverage of the methods available, but the length of each section does not invariably reflect the relative importance of each method (the longest section is that dealing with Mössbauer spectroscopy, where the author has made several important contributions). The chapters on solvent effects on reaction chemistry are well illustrated by examples. The translation is at times a little heavy, but in general this book gives a useful review of an important subject.

A. F. WILLIAMS