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## International Journal of Environmental Analytical Chemistry

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713640455>

**A Review of: “Selective sample handling and detection in high-performance liquid chromatography (Journal of Chromatography Library, Vol. 39A), edited by R. W. Frei and K. Zech, Elsevier, Amsterdam, Oxford, New York, Tokyo, 1988, 457 pp., price US \$ 117.00, ISBN 0-444-42881-X”**

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**To cite this Article** De Jong, G. J.(1988) 'A Review of: “Selective sample handling and detection in high-performance liquid chromatography (Journal of Chromatography Library, Vol. 39A), edited by R. W. Frei and K. Zech, Elsevier, Amsterdam, Oxford, New York, Tokyo, 1988, 457 pp., price US \$ 117.00, ISBN 0-444-42881-X”', International Journal of Environmental Analytical Chemistry, 34: 4, 363 — 364

**To link to this Article** DOI: 10.1080/03067319808026849

**URL:** <http://dx.doi.org/10.1080/03067319808026849>

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## Book Review

Selective sample handling and detection in high-performance liquid chromatography (*Journal of Chromatography Library*, Vol. 39A), edited by R.W. Frei and K. Zech, Elsevier, Amsterdam, Oxford, New York, Tokyo, 1988, 457 pp., price US \$ 117.00, ISBN 0-444-42881-X

The subjects of the chapters of this book are very different as the title of the book already suggests. Such a combination of subjects in one book looks somewhat strange but can be justified by the strong interdependence of sample handling and detection in chromatography. If a selective and sensitive sample handling method is used, the demands on the separation and detection are less and vice versa. Therefore, many people working in the field of trace analysis of complex samples will be interested in (nearly) all the chapters. On the other side, the coherence between the subjects is partly very small so that some specialists will only find one or two chapters of interest.

Chapters 1 and 2 are much related because in both chapters on-line solid-liquid extraction is discussed. The applications shown in chapter 1 are coming from the environmental analysis and chapter 2 deals with the use of precolumns for the analysis of biological samples. There is some overlap between the two chapters, but also some differences are very obvious. Besides the different application field chapter 1 pays more attention to theoretical aspects and the available (commercial) hardware while chapter 2 describes more practical aspects as, e.g., flushing eluent and time and pressure fluctuations. The title of chapter 1 is not fully right because also off-line solid-liquid extractions are presented. The chromatograms in chapter 2 have only been chosen from the work of the authors themselves which is a clear limitation. However, both chapters together give a good overview on the use of precolumns in liquid chromatography.

Chapter 3 deals with the immobilization of compounds for selective interactions and is really excellent. Supports with immobilized compounds can be used for selective sample handling, separation and detection and, therefore, are of direct interest for the whole field mentioned in the title of the book. The chapter discusses chelating agents, metal-loaded phases, charge transfer complexing compounds, high-performance affinity chromatography phases and chiral phases for selective sample pretreatment and separation. Immobilized reagents, especially enzymes, are shown to be very suitable for selective detection. This chapter contains more than 400 references and the only criticism is that only one chromatogram is shown. The subject of chapter 7 is also solid-phase reactions in liquid chromatography and in addition to some nice examples of different reaction principles (also chromatograms!) the theory of these reactions is set out.

Chapter 4 has been devoted to labelling reagents for increase of sensitivity and/or selectivity in liquid chromatography. Many similar chapters have already been written in the past years but this up-to-date overview is certainly worthwhile. Reagents for UV/Vis, fluorescence, electrochemical and chemiluminescence detection are presented in good tables, figures and complete methods. It is somewhat surprising that this author (Prof. Imai) describes only very shortly chemiluminescence detection systems.

Chapter 8 shows the commercially available apparatus for post-column labelling reactions. The danger of such a chapter is always that it is too commercial. Although many figures of apparatus could be missed, the chapter is useful for many (potential) users of these systems. However, it seems that much information in such a chapter is obsolete after a rather short time.

Chapters 5 and 6 discuss two special detectors, i.e., photodiode array and electrochemical. Chapter 5 gives a good insight in the potential of photodiode array detection but the chapter contains too few examples and references. Chapter 6 deals with the type of applications, theory, types of cells and electrodes for electrochemical detection in liquid chromatography. Also for this detection mode derivatization is demonstrated to offer many possibilities.

As a conclusion it can be stated that this book is very worthwhile for all people with interest in sample handling and detection in liquid chromatography. Many good tables, figures and references make this book valuable as an efficient reference work.

G. J. de Jong