

Handbuch der Ionenchromatographie

Joachim Weiß

VCH Verlagsgesellschaft, Weinheim, 1985. 288 S., 160 Abb., 27 Tab. DM 118,-

Die chromatographische Trennung von Anionen und Kationen hat im letzten Jahrzehnt durch die Einführung der sogenannten „Ionenchromatographie“ einen gewaltigen Fortschritt gemacht. Der Begriff „Ionenchromatographie“ beschreibt das Gesamtsystem, nämlich die Trennung *und* die Detektion der Ionen im Säuleneluat. Das von Small et al. 1975 eingeführte Verfahren verwendet klassische Ionenaustauscher auf Kunstharzbasis, zur Verbesserung der Effizienz ist die wirksame Austauscherschicht mit niedriger Kapazität in Form eines dünnen Polymerlatextfilms nach Art der Dünnschichtteilchen (porous layer beads) aufgebracht. Dies erlaubt die Verwendung sehr verdünnter Puffer zur Elution, deren Eigenleitfähigkeit leicht unterdrückt werden kann, entweder elektronisch oder chemisch durch Neutralisation mittels Suppressoren in Form von Säulen oder Membranen.

Das vorliegende handliche Buch gibt einen Überblick über das Gesamtgebiet der Chromatographie von Ionen anhand einer Vielzahl von praktischen Beispielen aus dem umfangreichen Anwendungsschatz des Verfassers und der Firma, die Ionenchromatographen mit Suppressoren vertreibt. Manche Darstellungen im Buch weisen auf ein Marketingkonzept hin und können zur Verwirrung von Anfängern beitragen. Als Beispiel möge das Kapitel Ionenausschluß-Chromatographie erwähnt werden, wo die vorgestellten Trennungen größtenteils auf Sorption an der Ionenaustauscher-Matrix beruhen. Es ist fraglich, ob in einem derart praxisbezogenen Buch z.B. die Dispersion der Zone, die Thermodynamik der Retention bzw. die Onsager-Gleichung der Äquivalentleitfähigkeit mitaufgenommen werden müssen.

Trotz dieser persönlichen Bedenken gibt das vorliegende Buch einen Überblick der vielen Trennungen, die mit der sogenannten Ionenchromatographie möglich sind, und gibt anhand von Beispielen viele wertvolle Hinweise für die chromatographische Praxis der Trennung ionischer Substanzen.

H. Engelhardt, Saarbrücken

Analysis of Hazardous Substances in Biological Materials Volume I

Ed. J. Angerer and K. H. Schaller

VCH Verlagsgesellschaft, Weinheim, 1985, pp. 222 Price DM 90,- US \$ 36.00

Collected in this volume are the first methods published in English from the Working Group of the Commission of the German Science Foundation for the Investigation of Health Hazards of Chemical Compounds in the Work Area. According to the foreword further volumes are planned and are promised at short intervals. No indication is given of the contents of future publications but some idea can be gleaned from the contents of Volume I where "more than half of the methods are concerned with the determination of carcinogenic substances and their metabolites". An important objective has been to estimate as many substances as possible in a single analysis.

The analyses are grouped under fourteen headings and to illustrate the last statement the first method covers the determination of aromatic amines in urine including 1-naphthylamine; 2-naphthylamine; 4,4'-methylene-bis-(2-chloroaniline) and 3,3'-dichlorobenzidine. The method, in fact, uses high-performance liquid chromatography (HPLC) (referred to here as high-*pressure*). Two of the fourteen analytical methods involve HPLC and four, gas chromatography. Determination of Be, Cd, Co, Pb, Ni and Tl are given and, as would be expected, these are mostly by atomic absorption spectrometry. Sufficient practical detail is provided to enable an estimation to be carried out without recourse to other literature, although some references are given. The presentation is clear, the style is prescriptive and each analysis is preceded by a consideration of the general principles of the method and the equipment and materials required followed by indications of the precision, accuracy, detection limits and sources of error. All terms such as accuracy and precision (accuracy and *imprecision* in this case) are defined in a glossary at the beginning of the book.

This is an admirably clear and precise text, a model of what such publications should be.

R. Stock

Nitrated Polycyclic Aromatic Hydrocarbons

C. M. White (Ed.)

Dr. Alfred Hüthig Verlag, Heidelberg 1985, pp. 560. Price DM 128; \$ 68

Being a member of the Chromatographic Methods series this volume could reasonably have included in its title the word chromatography or, possibly, analysis. Only two of the seven chapters are not, in fact, concerned with chromatographic or analytical aspects, these are Chapter 4 on the synthesis of nitrated polycyclic aromatic hydrocarbons (nitro-PAHs) and Chapter 6 on their mutagenic and carcinogenic properties. Other than these only Chapter 5: Sampling and Atmospheric Chemistry of Particles Nitrated Polycyclic Aromatic Hydrocarbons does not involve chromatography.

The whole field of PAHs is of intense current interest so this book is very timely. Each chapter is by a specialist-author or authors, Chapter 1 being by the Editor. A lot of information has been packed into this book and there is relatively little overlap between the various sections, a frequent shortcoming of volumes involving many contributors. In addition to the main text there is a substantial appendix (about 30 pp) listing physical data and structural information for nitro-PAHs.

The format is similar to that of other members of this series except that the number of pages is larger than usual and, whereas in earlier volumes the text occupied only about two thirds of the available space the text of this book utilises it fully. The advantage of the earlier arrangement was that it was particularly easy to find one's way around but at the cost of much wasted space. On the whole, this reviewer favours the full utilisation of printing space since this presumably reduces costs. As it is the book is certainly not cheap but in spite of the importance of the subject the market cannot be large. For people working in the field, however, this is a book they cannot afford to miss.

R. Stock