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The Book Corner

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THE BOOK CORNER

GAS-LIQUID SOLID CHROMATOGRAPHY, by V. G. Berzkin, Chromatographic Science Series, Volume 56, Marcel Dekker, Inc., New York, NY, 1991. Price: \$99.75 (USA and Canada).

It is common knowledge to all gas-liquid chromatographers, especially those who use the technique for physicochemical measurements, that the mechanism of retention is a combination of dissolution in the liquid phase, adsorption at the mobile gas-stationary liquid interface and adsorption at the stationary liquid-solid support interface. Retention equations that incorporate all these contributions have been articulated in several chromatography books, monographs and reviews.

This book takes a fresh look at the subject. The author treats the subject of retention in gas-liquid chromatography in a systematic manner. Equations are developed for the retention volume, the relative retention and the retention index. Interlaboratory discrepancies in these chromatographic parameters are widely reported in the literature. This book blames the discrepancies on the effect of the solid support and gives solutions that if implemented will give more consistent results. The question that remains unanswered is how easy or difficult it is for chromatographers to perform the laborious experiments and whether or not it is worth the effort of practical analytical chemists.

The book gives gas-liquid chromatography, as we know it, the new name gas-liquid-solid chromatography in order to emphasize the contribution of adsorption to retention. We believe that this is unnecessary despite the author's claim that the distinction is not only a question of terminology.

On the other hand, the book is a very useful companion for those who use gas chromatography for physicochemical measurements.

Table of Contents:

Chapter 1. **Introduction to Gas-Liquid-Solid Chromatography**, (1).

Chapter 2. **Absolute Retention of Analyzed Compounds**, (18).

- Chapter 3. **Influence of Adsorption of Analyzed Compounds on Relative Retention Values and Invariant Relative Retention Values**, (64).
- Chapter 4. **Effect of a Solid Support on the Efficiency of Chromatographic Separation**, (95).
- Chapter 5. **Specific Features of Separation**, (121).
- Chapter 6. **Effect of Adsorption and Catalytic Activity of a Solid Support on the Quantitative Analysis of Data**, (144).
- Chapter 7. **Determination of Equilibrium Parameters of Absorption Interaction Between Chromatographed Substances and Stationary Liquid Phase**, (182).
- Chapter 8. **Determination of Physicochemical Parameters for Adsorption of Chromatographed Compounds at the Gas-Stationary Liquid Phase and Stationary Liquid Phase-Solid Support Interfaces**, (195).
- Chapter 9. **Effect of Solid Support on the Conditioning and Aging of Chromatographic Columns**, (208).

Reviewed by:

Dr. George M. Janini
Program Resources, Inc./DynCorp
NCI-Frederick Cancer Research and Development Center
P.O. Box B
Frederick, Maryland 21702-1201

TRACE METAL ANALYSIS AND SPECIATION, Edited by I. S. Krull, Journal of Chromatography Library, Volume 47, Elsevier, New York, 1991, 302 pages.
Price: \$123.00.

The editor describes in the Introduction what trace metal speciation means: "Trace metal speciation refers to our ability to define which forms of a given metal or organometal appear in a particular sample, and at what precise quantitative levels such chemicals occur. Various methods have evolved, gas chromatography (GC)-mass spectrometry (MS), GC-plasma emission spectrometry, HPLC-UV/FL/EC detection, HPLC-mass spectrometry, HPLC-inductively coupled plasma (ICP) emission, HPLC-ICP-MS, GC/HPLC-direct current plasma (DCP) emission, and others. All of these have shown extreme promise for specific metal species in specific sample matrices, with varying degrees of selectivity, specificity, and sensitivity (as well as detection limits). They have all provided analysts with a choice

of methods for trace metal species determination, and there is no clearcut formula for deciding which specific hyphenated or direct methods of analysis are best for a particular metal species in a particular sample matrix. Perhaps that is what is lacking in the overall scheme of trace metal speciation. Advice as to which method to choose for a particular metal species in a particular sample matrix would provide significant assistance to those really interested in applying the many methods available."

This volume describes the most recent advances in areas of analytical chemistry that relate to the trace determination of metals and inorganics, as well as their distribution and forms (species) present, sample dependent. Analytical approaches are described that encompass a number of separation methods.

This book is well written and is recommended to those interested in metal species determination.

Table of Contents:

- Chapter 1. **Chromatography-Element Selective Detection: Interfacing of Gas-Chromatography with Microwave Induced Plasma Emission Detection (GC-MIP)**, P.C. Uden, (1).
- Chapter 2. **Determination of Organometallic Compounds in Environmental Samples with Element-Specific Detectors**, K.J. Irgolic, (21).
- Chapter 3. **Chromatographic Sample Introduction for Plasma Mass Spectrometry**, D.T. Heitkemper and J.A. Caruso, (49).
- Chapter 4. **The Future of Intelligent Spectrometers in Speciation by Atomic Emission Spectrometry**, R.B. Bilhorn, R.S. Pomeroy and M.B. Denton, (75).
- Chapter 5. **Inductively Coupled Plasma-Mass Spectrometry for Element-Selective Detection in Liquid Chromatography**, R.S. Houk and S.-J. Jiang, (101).
- Chapter 6. **The Use of Complexing Eluents for the High Performance Liquid Chromatographic Determination of Metal Species**, B.D. Karcher and I.S. Krull, (123).
- Chapter 7. **Instrumentation and Procedures for the Long Term Monitoring of Metal Ions in Industrial Effluents by Liquid Chromatography with Electrochemical Detection**, A.M. Bond, (167).
- Chapter 8. **Ion Chromatographic Speciation of Trace Metals**, D.T. Gjerde and H.C. Mehra, (213).
- Chapter 9. **Interfacing of GC/HPLC with Direct Current Plasma (DCP) Emission Spectroscopic Detection for Trace Metal Analysis and Speciation**, I.S. Krull and Wm. Childress, (239).

GAS CHROMATOGRAPHY, A PRACTICAL COURSE, by Gerhard Schomburg, VCH Publishers, New York, 1990, 320 pages.

This book is intended, according to the author, to represent a connecting link between the simple theory of GC and the requirements of GC analysis in practice. Professor Schomburg succeeded in doing that by treating the theory in a concise way or as he stated it "as far as it is effective in finding the optimal approach to the solution of practical problems".

The book is divided into thirteen chapters dealing with theory (20 pages), instrumentation, qualitative and quantitative analysis, applications (100 pages), sources of analytical error, analytical supercritical fluid chromatography and other topics. It is well written, free of errors, concise, to the point and full of chromatograms and figures which are simple to comprehend. This book is recommended for all interested in GC. "The difficulties in the application of capillary GC demand a level of training and experience above a certain knowledge of chromatographic separations" writes Professor Schomburg. I agree.

Table of Contents:

- Chapter 1. **The Role of Gas Chromatography Among Other Methods of Instrumental Analysis**, (1).
- Chapter 2. **Design and Functions of Instrumentation for Gas Chromatography**, (5).
- Chapter 3. **The Basic Theory of Chromatographic Separations**, (9).
- Chapter 4. **The Gas Chromatogram**, (15).
- Chapter 5. **Elements and Parameters of Gas Chromatographic Instrumentation**, (31).
- Chapter 6. **Methods of Qualitative and Quantitative GC Analysis of Mixtures**, (85).
- Chapter 7. **Special Methods, Auxiliary Techniques and Applications of Gas Chromatography**, (123).
- Chapter 8. **Sources of Analytical Error in Gas Chromatographic Systems: Elucidation and Elimination**, (155).
- Chapter 9. **Analytical Supercritical Fluid Chromatography**, (175).
- Chapter 10. **The Coupling of LC and GC**, (189).

Chapter 11. **Gas Chromatographic Applications Using Different Methods and Techniques**, (19/).

Chapter 12. **Important Equations and Terminology of Gas Chromatography**, (291).