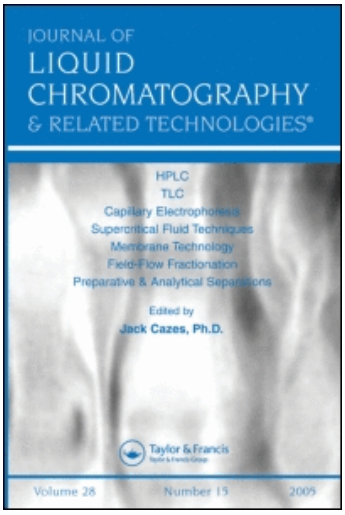

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THE BOOK CORNER

LIQUID CHROMATOGRAPHY OF OLIGOMERS, C. V. Uglea, Chromatographic Science Series, Jack Cazes, editor, Volume 72, Marcel Dekker, Inc., New York, 1996, 344 pp., Price: $150.00

This book details the principles and mechanisms of, and the equipment and optimal working conditions for, the liquid chromatographic separation of well defined oligomeric species and fractions with narrow molecular weight distributions.

Providing a complete description of the applications and possible performance of liquid chromatography in the field of oligomer separation, *Liquid Chromatography of Oligomers* elucidates theoretical concepts such as the mechanism of retention and the thermodynamic explanation of oligomer separation, discusses the definition of chromatography, covers both simple and complex forms of chromatographic instrumentation, delineates procedures used for the fractionation of oligomeric mixtures, lists the main producers of chromatographic devices, describes the chemical non-homogeneity of polymers and oligomers, presents the nomenclature of oligomers, examines gel-permeation chromatography, and contains over 1475 pertinent citations to literature sources.

The book focuses on two major objectives: (1) the description of the procedures used by liquid chromatography for the characterization of oligomeric mixtures, and (2) the presentation of the equipment and optimal working conditions used to perform the separation of both well-defined oligomeric species and of fractions with narrow molecular weight distributions.

Chapter 1 deals with the definition and history of chromatography and the nomenclature of oligomers. Chapter 2 discusses molecular non-homogeneity of synthetic oligomers. Oligomers, as well as high polymers, are characterized by both molecular weight distribution and nonhomogeneity of chemical composition. Functionality distribution is also included in the molecular heterogeneity of oligomer mixtures.

Liquid chromatography of oligomers is presented in Chapter 3. Although liquid chromatography may be performed in various modes (thin-layer chromatography, partition chromatography, adsorption chromatography, etc.), liquid-solid chromatography represents the most important means for the study of the molecular weight distributions of oligomers.

Gel permeation chromatography became a part of liquid chromatography primarily because of its equipment characteristics. Its mechanism and performance make gel permeation chromatography a unique method with valuable applications in the chemistry of oligomers and polymers. Chapter 4 is dedicated to this method, covering the theoretical basis and mechanisms, column packings (gels), calibration procedures, and applications and equipment.

Liquid Chromatography of Oligomers is intended both for experts with experience in the field of oligomers and polymer synthesis and characterization and for students interested in becoming acquainted with the fascinating world of oligomers and macromolecules.

CHROMATOGRAPHIC DETECTORS - DESIGN, FUNCTION, AND OPERATION. By R. P. W. Scott, Chromatographic Science Series, Jack Cazes, editor, Volume 73, Marcel Dekker, Inc., New York, 1996, 536 pp., Price: $150.00

Chromatographic Detectors is a well written book which is divided into three parts. The first part deals with detector properties and specifications. This is a short part, containing three chapters totalling 82 pages. The second part (4 chapters totaling 93 pages) discusses gas chromatography detectors, from their initial evolution 'till modern times. Part 3, which is the bulk of the book, is made up of 11 chapters totaling 325 pages and dealing with all types of liquid chromatography detectors. (See Table of Contents for details).

The book emphasizes the essential use of common specifications to describe all detectors, allowing easy comparison of their attributes, this practical guide . . . .

> Discusses the properties of chromatography detectors and the best way to measure their efficacy.
>
> Reviews factors that impair the column resolution before solutes reach the detector.

Describes and explains the relatives merits of the more popular detectors, including the most recent commercially available types, as well as lesser-known devices.

Explores the extensive number of TLC detectors available, including automatic scanning devices.

Surveys those chromatograph/spectrometer tandem systems that have been satisfactorily developed and details their interfacing, function, and areas of application.

The book is highly recommended to all those interested in chromatography.

CAPILLARY GAS CHROMATOGRAPHY, by D. W. Grant, Separation Science Series, John Wiley & Sons, Inc., New York, 1995, 295 pp.

This concise book is divided into nine chapters. The first chapter is an introduction. Chapter two deals with theory of open tubular columns, effects of gas compressibility, separation process, plate theory, kinetic or rate theory, and resolution of chromatography.

Chapter three covers capillary instrumentation, which includes the characterization of modern gas chromatograph, gas supply system, column coupling and connections, injector, chromatographic oven, detectors for capillary GC, peak measurement and data processing.

Chapter four discusses the use of fused silica open tubular (FSOT) columns, stainless steel open tubular columns, parameters effect on wall-coated open tubular (WCOT) columns, quantitative parameters and resolution, stationary phase in capillary GC, effect of temperature on retention, and measurement of retention time.

Chapter five deals with porous layer open tubular (PLOT) columns, which includes the theory, development, and types of columns, while, in chapter six, the emphasis is on sample introduction, including the theoretical basis of sample introduction, and sample introduction methods.

In chapter seven, the focus is on the preparation of samples using distillation, solvent extraction, supercritical fluid extraction (SFE), solid phase extraction, HPLC-CGC combination, headspace analysis, and sample derivatization.

Chapter eight concentrates on analysis and optimization, which includes quantitative analysis in capillary GC, principles and practice of trace analysis, theory and practice of programmed temperature operation, practical optimization and troubleshooting.

Chapter nine is an interesting one which deals with multidimensional GC and column switching, columns connected in series without switching, backflushing techniques, heart cutting techniques, and multicolumn analysis.

In general, the book is well written and illustrated, and incorporates several new practices and techniques which are supported with appropriate theoretical discussion. The new GC improvements presented here make capillary gas chromatography a useful and competitive analytical technique. The book is recommended to all interested chromatographers and other scientists interested in separation as an analytical tool.

Table of Contents

Chapter 8. **Analysis and Optimization** (235).

Chapter 9. **Multidimensional Capillary GC and Column Switching** (267).

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