

Book Reviews *

Practical Capillary Electrophoresis. 2nd Edition. By Robert Weinberger (CE Technologies, Inc.). Academic Press: San Diego and London. 2000. xviii + 462 pp. \$99.95. ISBN 0-12-742356-7.

The breadth and depth of this text are appropriate for the growing use of capillary electrophoresis. Although the chapters are organized in terms of methodology or mode of separation, nearly every chapter either integrates application descriptions or contains a section devoted to application development. Practical considerations are presented throughout—for instance, buffer selection or capillary conditioning—and often commercial availability is noted through discussions and compilations of commercial sources. In addition, separation conditions and buffer recipes are outlined and referenced in a number of extensive tables for different applications (carbohydrates, small molecules, peptides, proteins), as well as different modes of capillary electrophoresis (micellar electrokinetic capillary chromatography, chiral recognition, capillary isoelectric focusing, size-based separations facilitated by cross-linked gels, size-based separations facilitated by polymer networks, and capillary electrochromatography). The listing here is only a representative selection of the exhaustive and well-organized collection of information reported in tabular form throughout the book.

The initial discussion of free zone-capillary electrophoresis introduces basic concepts, historical development, future directions, generic instrumentation, terminology, and fundamental advantages and drawbacks. The book contains a thorough yet understandable discussion of theory that spans 45 pages. A great portion of the book addresses issues pertinent to specific modes of operation: i.e., secondary equilibria (as in micellar electrokinetic capillary chromatography and chiral recognition), capillary isoelectric focusing, size-based separation, and capillary electrochromatography. Chapters devoted to specific modes of capillary electrophoresis profile seminal papers associated with initial and/or innovative reports. Current advances are also a focus, and approximately half of the total cited references, excluding Chapter 1 (Introduction) and Chapter 2 (Basic Concepts), have been published within the past five years. In general, the discussion of different modes of capillary electrophoresis contains key concepts and underlying theory, including the inherent separation mechanisms and in some cases efficiency. Practical implementation of each mode is explained in terms of fundamental operation with a more detailed outline of specific parameters relevant to each mode: for example, buffer additives, gels, polymer networks, open tubular or packed column issues, optimization, and equilibration.

While the scope of the book is admirably broad, the discussion of significant modes of operation of capillary electrophoresis is quite extensive. Exceptions to this are affinity capillary electrophoresis and capillary isotachopheresis, which are intentionally concise. However, in both instances a brief discussion is accompanied by a list of referenced applications or buffer systems. Finally, the book focuses on other important aspects of practical application: methods of injection, considerations for each injection method, feasible approaches to detection, detection protocol, and method validation in roughly 130 pages of discussion, which includes a three-page troubleshooting guide. The book conveys general and fundamental concepts in a readable manner combined with an awareness of the need to sort out practical concerns for implementing capillary electrophoresis.

Lisa Holland, *Kent State University*

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Adsorption on Silica Surfaces. Surfactant Science Series. Volume 90. Edited by Eugène Papirer (Institute de Chimie des Surfaces et Interfaces, Mulhouse, France). Marcel Dekker: New York. 2000. xiv + 754 pp. \$235.00. ISBN 0-8247-0003-1.

Written by over 35 experts in the field, this book offers not only a historical overview of silica research but also the latest findings in silica adsorption. The chapters are arranged according to the following

subheadings: The Silica Surface; The Silica-Water Interface; Adsorption from the Gas Phase; Adsorption on Silica from Aqueous Solutions; Adsorption on Silica from Organic Solutions; Adsorption from the Melt; Adsorption in Relation with Silica Toxicity; and Application in Industry and Environment. Some of the areas covered are adsorption on modified and nonmodified silica surfaces, micromolecular adsorbents versus macromolecular adsorbents, analysis of surface chemistry using IR and NMR spectroscopies, and more.

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High Temperature Properties and Thermal Decomposition of Inorganic Salts with Oxyanions. By Kurt H. Stern (National Research Laboratory). CRC Press LLC: Boca Raton, FL. 2001. xx + 266 pp. \$179.95. ISBN 0-8493-0256-0.

This book brings up-to-date the four earlier monographs on the subject matter written by the author between 1968 and 1972 under the auspices of the Standard Reference Data Program. It provides qualitative and quantitative information on the behavior and properties of approximately 300 compounds and includes thermodynamic tables of decomposition equilibria as well as introductory discussions of the thermodynamics used in the book and of the kinetics of solid-state decomposition. For each class of compound, there is a modified form of the periodic chart that indicates whether these compounds exist, are believed to exist, or are not known to exist. Information about phase transition and densities in the solid and liquid phases is also provided.

JA0048477

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Olefin Polymerization: Emerging Frontiers. Edited by Palanisamy Arjunan (Exxon Chemical Co., Baytown, TX), James E. McGrath (Virginia Polytechnic Institute and State University), and Thomas L. Hanlon (Albemarle Corp., Baton Rouge, LA). American Chemical Society: Washington, DC (Distributed by Oxford University Press). 2000. x + 206 pp. \$120.00. ISBN 0-8412-3614-3.

This book contains selected papers (in full manuscript form) presented at the symposium, "Advances in Olefin Polymerization", in Dallas, Texas, in the spring of 1998. The chapters are organized into the following four emerging frontiers in olefin polymerization: progress in catalysis, progress in polymerization, progress in polymer design, and progress in characterization.

JA004869T

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Structure Determination of Organic Compounds. Table of Spectral Data. Third Completely Revised and Enlarged English Edition. By Ernoe Pretsch (ETH Zurich), Philippe Bühlmann (University of Tokyo), and Christian Affolter (Muenchringen, Switzerland). Springer-Verlag: Berlin, Heidelberg, New York. 2000. xvi + 422 pp. \$42.00. ISBN 3-540-67815-8

This book compiles reference data, spectra, and empirical correlations from infrared, ultraviolet-visible, ^1H and ^{13}C nuclear magnetic resonance, and mass spectroscopy in the form of texts, tables, charts, and graphs. Its intent is to aid the researcher in interpreting molecular spectra in order to elucidate the structures of organic compounds. A CD-ROM is also enclosed, which contains programs for estimating NMR chemical shifts and generating isomers based on molecular formula and structural information.

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