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Book Review

Chromatography of Natural, Treated and Waste Waters

Edited by T. R. Crompton

Taylor & Francis Group, New York, 2003.

ISBN 0-415-28004-4. xxiii + 494 pages. Price \$240.00

T. R. Crompton has accomplished a significant task, summarizing the literature (up to 1998) for the determination of organic and inorganic compounds in a variety of water substrates (surface/natural water, treated water, and waste water). Overall, the book is relatively easy to read; the manuscript produced by the author contains clear tables, figures, and font. The first chapter presents a brief overview of the techniques presented in the book. The author assumes that the reader has a general understanding of chromatography and the basic components of a chromatographic system. The remainder of the book is organized into chapters by chromatographic technique. Each of these subsequent chapters is organized by the variety of compounds that have been successfully analyzed by each technique. In this way, a reader can search for information by either analyte or analytical technique. The chromatographic techniques include widely used techniques such as gas chromatography, high-performance liquid chromatography (both with a variety of detectors including mass spectrometry), thin-layer chromatography, ion-pair chromatography, capillary electrophoresis, and ion exchange chromatography. Less common techniques are also presented: micelle chromatography, electrostatic ion chromatography, ion exclusion chromatography and gel permeation chromatography. Classes of compounds addressed in this text include a wide variety of naturally occurring as well as anthropogenic compounds such as metals, organometals, carboxylates, insecticides, herbicides, fungicides, fertilizers, petroleum-related compounds, detergents, plasticizers, and disinfectants. In these chapters, the author briefly summarizes the scientific literature with respect to the analytical techniques covered in chapter one. Although details are generally insufficient to permit readers to duplicate reported analyses, a truly impressive number of cited references are listed at the end of each chapter. The book concludes with a comprehensive subject index.

This book provides a good initial reference for a variety of graduate students, scientists (chemists, biologists, soil scientists, toxicologists, environmental scientists, etc.), managers, and public health professionals who may be faced with evalu-

ating and/or developing an analytical approach for the analysis of organic and/or inorganic compounds in a water-based matrix. As most scientists work with finite resources, this book would be valuable to researchers who wish to apply their existing technology to new analytical challenges. This text would also be valuable to professionals reviewing data submissions, proposals, and/or grant applications.

Most chapters, after a brief introduction, offer a straightforward review of the literature by compound class. Many chapters contain valuable tables that compare the suitability of the analytical technique being discussed for a variety of compounds. Inclusion of detection limits and references further increase the value of these tables. For future editions of this text, additional information that would be helpful to the reader might include relative cost, sample throughput, and reproducibility.

I believe a large number of readers would benefit greatly from a discussion section at the end of chapter. Because many chapters contain mostly references which are more than 20 years old, this discussion might include a comparison of detection methods with respect to limits of detection, cost, sample throughput, and reproducibility. The discussion section could help the reader determine the advantages of one technique over another and which techniques are commonly used today versus those that are antiquated. This would be easier if individual chapters were written by pertinent experts or at least if there were multiple editors rather than having one author compile and edit the entire book. Additionally, a brief summary of the author's experience/expertise would possibly contribute credibility to this book. An addition that would greatly increase the value of the book would be the inclusion of the article titles in the cited references. This would make it easier for readers to determine the value of citations prior to obtaining the article. Another addition that would be helpful to readers would be a compilation of manufacturers and suppliers of the instrumentation and supplies pertinent to each chapter. Inclusion of web site addresses would ensure that readers can quickly access current information regarding each technique.

Because this book is potentially valuable to environmental professionals with training in a wide variety of disciplines, the addition of chemical structures to represent the various classes of compounds discussed in this book would be helpful. This might also help readers identify suitable chromatographic techniques for their research problem of interest based on a compound's functional groups rather than simply applications (i.e., herbicides). Another option would be to include an appendix containing the structures of the specific compounds discussed in the preceding chapters.

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Several years ago, a text containing references all of which were more than 5 years old would be of questionable value. However, the ability of scientific literature searching programs (i.e., Web of Science) to search both forward and backwards in time may actually increase the value of this text. By providing the initial and sometimes most important references for a particular application, Internet-savvy readers can quickly identify other (more recent) researchers who have used these references as a foundation for their own research endeavors. Thus, the references in this text provide a conduit to the most recent research involving chromatography of compounds in natural, treated, and waste waters.

Personally, I enjoyed reading this book. It gave me several ideas for analytical projects that I am currently working on in my laboratory. All in all, this book is a very noble undertaking. Despite some shortcomings, this book is a very valuable text for scientists and regulatory personnel in a wide variety of disciplines.

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