

BOOK REVIEW

***Capillary Electrophoresis,* by Dale R. Baker**

*Wiley, New York, 1995; 244 pp.; \$49.50;
ISBN 0471117633*

Capillary electrophoresis (CE) is a new and inexact science. Like high-performance liquid chromatography (HPLC) of 25 years ago, it is demonstrating some exciting potential while presenting a significant challenge to separation scientists. HPLC matured slowly through difficult times of acceptance and reliability and became a reliable laboratory analytical tool only after years of educating scientists and industrial management about its potential. The need for a good textbook on this subject is obvious and many of the lessons learned during the embryonic era of HPLC should be employed in this area of separation science.

What is a book supposed to do? One metric of how a book functions is to consider how well it fulfills one or more of the goals of the author. Dale Baker wrote this book with the novice in mind, with just enough theory included to support the practical use of the technique. Beyond the novice, the author intended this book to function as a reference source to aid the progressing separations specialist. The inclusion of many drawings and diagrams is helpful to both novices and moderately experienced workers. Most of the pages utilize drawings and graphs to advantage.

The book is organized in seven chapters starting with an overview and a comparison to complementary separation techniques. The second chapter treats the theory of electrophoretic separation science and is presented with excellent interplay between practicality, readability, and theory. Chapter 3 surveys modes of operation beginning with micellar electrokinetic capillary chromatography (MEKC or MECC). Other modes are: capillary gel electrophoresis (CGE), capillary isoelectric focusing (CIEF), and finally capillary isotachopheresis (CITP). The longest treatment of the modes of operation can be seen in the section on MEKC. The most successful analog of HPLC (reversed phase chromatography) corresponds to MEKC in CE in the author's view. Chapter 4 covers the hardware in a fair and balanced survey of the essentials and numerous

commercially available options. The survey presented here allows interested scientists to pick the features and extras for purchase decisions. This is an important feature of a good book on special techniques. Chapter 5 is devoted to developing an analytical method. This is perhaps the most difficult area to address and the only place in the book where the reader is left to his or her own devices. This section surveys modes of operation after opening remarks about the literature and logical experimentation. An experienced separations scientist will likely find this part somewhat lacking in substance. The level is probably appropriate to this early period in the evolution of CE. A more sophisticated treatment would exceed the boundary conditions and goals defined by the author. Chapter 6 discusses standard qualitative and quantitative analysis procedures and presents little that is new. This information, though, is necessary for any introductory course in CE since novices and operators need to master the analytical results part of modern instrumentation. Most CE instruments now have powerful analysis and data processing software and these must be followed for particulars. The last chapter discusses applications and is fairly brief. With modern electronic libraries, there is probably no reason to be encyclopedic here. There is sufficient material presented on the topics of chiral separation, inorganic ions, proteins, and so on, to steer the interested reader toward the literature.

The book seems to fulfill the goals of the author and this reader is delighted with it. I have four books on this subject now and will be relying on this collection to help me advance in the art. When I need some help, the books on the shelf will be arranged in a manner so that I can read this one first.

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