

COREL 00802

## Book Reviews

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Phillip C. Wankat, *Rate-Controlled Separations*, Elsevier Applied Science, 1991, (Paperback), \$29.25.

The title of this book, *Rate-Controlled Separations*, is not one that would immediately draw the attention of a drug delivery scientist. This is somewhat unfortunate, because this book is packed with useful information, both theoretical and experimental that is relevant to the drug delivery. The book is divided into four parts, Part I, crystallization; Part II, sorption and chromatography; Part III, membranes, Part IV, selection and sequencing. Part I on crystallization contains chapters on equilibrium analysis, nucleation and crystal growth, population balances and crystal size distributions and crystallization from the melt. Part II on sorption and chromatography has chapters on the basis of sorption in packed columns, linear theories of sorption and chromatography, nonlinear theories and packed bed adsorption systems, ion exchange, moving bed and simulated moving bed sorption separations, and a chapter on electrophoretic separation methods. The chapters on electrophoretic separation methods and ion exchange are particularly relevant to controlled drug delivery while the chapters on mass transport through adsorbing systems have obvious applications to drug delivery in biological media. The section on membranes may be the most relevant to drug delivery scientists in that it covers the transport through the various types of membranes as well as presenting detail theories for membrane separations and transport in membranes. Given my own interest, I was particularly impressed by the section on membranes as well as the chapters on ion exchange and electrophoretic separations. These chapters present a clear and incisive presentation of material at a level that would be accessible to a graduate student in the pharmaceutical drug delivery sciences. It probably requires

at least math through differential equations and one course in basic mass transport phenomena in order to be fully accessible. However, the author's style is not in the least bit intimidating and I suspect that many graduate students and drug delivery scientists could gain much insight into rate controlled processes without even this level of mathematical preparation. The sections on crystallization and sorption and chromatography present information that would be of great interest and utility to pharmaceutical development scientists concerned with processing pharmaceutical and biological materials. The book contains many useful examples and includes an appendix with answers to selected problems. Consequently, the book lends itself to independent study and would be a superb recommended or ancillary text reference for a course in drug delivery or pharmaceutical development and processing.

*In summary*, this book is very highly recommended to pharmaceutical and drug delivery scientists. I suspect that research and development scientists working in these fields will find something of value in every single chapter in this book.

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F. Rodriguez-Reinoso, J. Rouquerol, K.S.W. Sing and K.K. Unger, eds., *Characterization of Porous Solids II*, Elsevier, Amsterdam, 1991, 782 pages, \$243.00.

In most publications on controlled release, porosity is dealt with in a rather simple manner. Typically, an overall average porosity parameter is obtained, and sometimes a macroscopic "tor-