

**Richard D. Noble, Patricia A. Terry, Principles of Chemical Separations with Environmental Applications, Cambridge University Press, New York, NY, 2004 (US\$ 120.00 hardback, US\$ 60.00 paperback, 335 pp., ISBN: 0-521-81152-X (hardback), 0-521-01014-4 (paperback)).**

Only in recent years have chemical engineers established themselves as researchers in the environmental field. It is a natural application of their training as environmental control and waste treatment processes involve both reaction kinetics and separation processes. This book addresses the latter topic. Being a chemical engineer myself, it was a pleasure for me to review this book as the authors discuss the major chemical engineering processes and their applications to the environmental field.

The book's first three chapters are general in nature, setting the stage for more technical discussion later. "In Chapter 1, we [the authors] give a generalized definition of separation processes and their environmental applications. Following this, the approach to the organization of this text is to first discuss, in Chapter 2, the generic aspects of separations technology as unit operations." "Mass transfer fundamentals, including equilibrium- and rate-based mechanisms, are introduced in Chapter 3 before any description of specific technologies." This chapter understandably is the longest in the book.

The following Chapters (4–9) discuss individual separation processes in separate chapters: distillation, extraction,

absorption and stripping, adsorption, ion exchange and membranes.

The book contains several features that as a textbook I found potentially useful:

- Each chapter begins with an outline of its objectives and ends with a "remember" section that reviews the important topics discussed.
- Questions are supplied for student discussion.
- Problems are given also for assignment (however in some chapters there are too few problems supplied to suit me – a minor criticism, however).
- Figures, diagrams and tables are well-done and fully explained.
- The Appendix contains some useful information that includes dimensionless numbers, mass transfer-coefficient correlations, pulse analysis, finite difference approach and bibliography of chemical separations and related physical properties.

In summary, in my opinion, this is a very good book and one that would be excellent to use when teaching a course in this area.

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