

ChE book reviews

CHEMICALS IN THE ENVIRONMENT: DISTRIBUTION-TRANSPORT-FATE- ANALYSIS

By W. Brock Neely

Marcel Decker, Inc., New York, 1980. 245 Pages

Reviewed by Alfred J. Engel
Pennsylvania State University

The author of this book, Dr. W. Brock Neely, is a biochemist by training and now works in the Environmental Research Laboratory of the Dow Chemical Company. It seems that the book is the indirect result of his self-education in the area of mathematical modeling of environmental phenomena. Six of the book's seven chapters, as well as most of the appendix, deal with a variety of models, from the compartmental approach to eco-systems, to dispersion methods in air and water pollution. Unfortunately, none of this material is of sufficient depth or comprehensiveness to allow the untrained reader to gain much expertise in the use of the models. On the other hand, the experienced reader will find much of the material well worn and quite inadequate for further use. Only the extensive bibliographies at the ends of the chapters may prove of real value.

One of the stated aims of the book is to make members ". . . of the scientific community . . . more adept at predicting what will occur in the environment as a result of some planned activity." Such activities, of course, are principally the release of chemicals into the eco-system. Although the book does an adequate job of describing various models for making such predictions in qualitative terms, it hardly lives up to its goals of making us more adept. We gain appreciation, rather than expertise.

On the positive side, the book presents throughout a much needed industrial view of environmental regulations and public policy regarding environmental impacts of industrial activity. A fair and balanced account of the PCB problem is presented, and the atmospheric fluoro-carbon controversy is discussed in detail and then related somewhat sketchily to possible models. On occasion the author becomes a bit strident, but no more so than most of us, in dealing with regulatory red tape.

Finally, the book is printed by photo-offset from a typewritten manuscript. Although the

type is clear and easy to read, and the illustrations and tables quite comprehensible, the proof reading and editing leave much to be desired. There are numerous typographical and spelling errors which proved to be very annoying.

This is not a book for the average chemical engineer. For those with training in environmental matters, it is mostly too elementary to bother with; for those with little background in this area, it may be a useful, though greatly simplified, introduction. Those willing to follow up on the bibliography may well learn a great deal. □

NUCLEAR CHEMICAL ENGINEERING

By Mason Benedict, Thomas Pigford, Hans Levi
McGraw-Hill Book Company

Reviewed by
Herbert S. Isbin

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Impressive in scope, details, and thoroughness! This text maintains a high concentration of rewarding material per page for approximately 1000 pages. Not surprising when one considers that three internationally recognized authorities have pooled their expertise into a skillful accounting of theory and practice for the nuclear fuel cycle. Manson Benedict (Professor Emeritus, MIT), a most distinguished elder in nuclear chemical engineering, has long been recognized for his abilities to focus on significant features and problems and to write in a remarkably clear and stimulating manner. Coauthors are Thomas H. Pigford (Professor of Nuclear Engineering at the University of California, Berkeley) and Hans Wolfgang Levi (Director of the Hahn-Meitner-Institut für Kernforschung in Berlin and APL-Professor of Nuclear Chemistry, Technische Universität Berlin). Further, the contributions of many professional colleagues in the United States and in Germany are acknowledged, reinforcing the prestigious technical input for this text.

The first of the fourteen chapters designates the chemical engineering needed to sustain the nuclear fuel cycle for the fission power reactors. Even though the purpose of the first chapter is to establish an overall perspective, quantitative details are provided in the flow sheets. The next two chapters, with emphasis on nuclear reactions and specifics of the fuel cycle, develop degrees of sophistication seldom achieved in other complete texts.

Continued on page 85.