second, methods for increasing critical heat flux for a boiling system. Multicomponent boiling and condensation, an enormous subject worthy of a book of its own, is examined briefly in the last chapter. Process industry engineers who struggle with multicomponent systems and mass-rate dependent evaporation will think this chapter is unsatisfactory and cursory. The readers of *Nuclear Technology* will find here a sufficient introduction to a peripheral subject.

All engineers in the power, petroleum, and process industries should have this book available, and each should try to read it. Whether each can master the material in a lifetime, and whether he can retain even a tenth of it is questionable. Luckily the author has provided a complete index that will relieve and refresh the memory.

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Hazardous Waste Processing Technology

Authors Yen-Hsiung Kiang and Amir A. Metry

Publisher Butterworths, Woburn, Massachusetts (1982)

Pages 549

Price $44.95

Reviewer B. L. Cohen

Following a brief introduction, this book is divided into two parts: 320 pages on thermal processing technologies and 200 pages on treatment technologies. Most of the thermal processing part deals with incineration, including a review of the fundamentals, descriptions of the various types of equipment—multiple hearth, fluidized bed, liquid injection, rotary kiln, cyclonic, auger combustor, multiple chamber, and fume incinerators—their peripheral systems, and miscellaneous topics; it also gives brief discussions of several other thermal processing technologies, like catalytic and oxygen incineration, pyrolysis, calcination, wet air oxidation, etc. The part on treatment technologies contains chapters on physical treatment including adsorption, centrifugation, dialysis, electrodialysis, electrolysis, electrophoresis, filtration, flocculation, flotation, freeze crystallization, freeze drying, suspension freezing, high-gradient magnetic separation, reverse osmosis, air stripping, ultrafiltration, and zone refining; there are also chapters on chemical and biological treatment with similar breadth of coverage.

As evidenced by the above lists given as examples, the coverage is very broad. The descriptions are clear and concise, aided by hundreds of figures. There is a reasonable amount of technical detail, including many tables, but not enough to make the reading slow or uninteresting. Environmental aspects, economics, advantages versus disadvantages, and range of applications are also considered.

The principal shortcoming for nuclear technologists is that there is very little material applicable to radioactive waste management. According to the biographical material on the authors, neither is experienced in that field, and there is no mention of the special problems involved in handling radioactivity. There is no discussion of encapsulation, solidification with cement, bitumen, or urea formaldehyde, or any of the other packaging techniques used or proposed for nuclear waste.

In summary, this book provides an excellent summary of nonnuclear waste management technologies, but not a great deal of direct applicability in the nuclear field.

Bernard L. Cohen is a professor of physics at the University of Pittsburgh, former director of its Scaife Nuclear Physics Laboratory (1965–1978), past chairman of the American Physical Society (APS) Division of Nuclear Physics (1974–1975), and 1981 recipient of the APS Bonner Prize for research in nuclear physics. For the past eight years he has specialized in environmental aspects of nuclear energy with special emphasis on waste management, radon problems, health effects of radiation, and risk and risk aversion. He was 1980–1981 chairman of the American Nuclear Society's Division of Environmental Sciences.

Thermal Energy Storage and Regeneration

Author Frank W. Schmidt and A. John Willmott

Publisher Hemisphere Publishing Corporation, Washington, D.C. (1981).

Pages 352

Price $35.50

Reviewer Ozer A. Arnas

This book discusses a topic that has become important once again due to the challenges of the ENERGY AGE. Though not an academic textbook, it nevertheless has a number of example problems distributed throughout. These give credibility to the theory as well as the results of the various computer approaches taken in the text.

The book is original in the sense that it brings together a number of related topics in the context of storage and regeneration. Although well organized and technically sound, it does suffer from the difficulties of American/British choice of terminology, nomenclature, and pedagogy.

After a brief introduction of thermal energy storage, a detailed presentation of the single-blow operating mode is presented, which leads into a discussion of transient response predictions of heat storage units. The counterflow and parallel-flow regenerators are also given good coverage. The computational methods of regenerators are discussed in a special chapter. Topics of heat storage exchangers, packed beds, and design optimization complete the contribution of the authors. A last chapter on heat transfer and pressure