

Additionally, details of the processes are often sparse. For example, they include no diagrams for a municipal wastewater plant. Moreover, the section describing the sludge treatment system also lacked depth.

However, to be fair in a review of such a wide-ranging book, one should not try to find “holes” in its coverage. To be truly “comprehensive” would take a series of books on the topic. Another factor limiting the coverage is publisher page limits and give those restraints, Burke et al. have done a creditable job of covering the environmental field.

I recommend the book as a resource text for libraries. It actually could be used as a course text, if student exercises and problems were included, except its price may be a little high for college students.

Gary F. Bennett

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Introduction to Hazardous Waste Incineration, 2nd edition

Joseph J. Santoleri, Joseph Reynolds, Louis Theodore (Eds.), Wiley/Interscience, New York, 2000, 650 pp., US\$ 99.95, ISBN 0-471-01790-6

Hazardous wastes are an almost inescapable byproduct of modern production. But what to do with them: bury, burn or recycle? Often the first two options are the only ones available. But hazardous waste disposal facilities such as incinerators or landfills are as popular as nuclear power plants. Personally, I favor incineration over land disposal as it destroys the wastes (or at least the organics) and has the potential for heat recovery. But incinerators do have emissions, and the public fears their impact on their health, especially from the “dreaded” dioxins. However, if well-designed and supplied with appropriate air pollution control equipment, I feel incinerators and their emissions are safe and should be utilized. This book addresses that need: how to design incinerators. It is intended both for students and practicing engineers.

The book is divided into four major parts, each with three or four chapters. The first section sets the stage for the rest of the book by placing the subject of hazardous waste incineration in historical perspective. Discussed are, among other topics, the origin, nature and current and past disposal practices for hazardous wastes. Methods other than incineration for the disposal of hazardous wastes are described in Chapter 2 (i.e. chemical, biological and physical treatments). Chapter 3 is the obligatory chapter discussing laws and regulatory standards and regulations regarding the generation, transport, treatment and disposal of hazardous wastes.

The second major section (Chapters 4–6) is the “heart” of the book according to the authors. From the perspective of this former chemical engineering professor, they are, as they cover thoroughly the theoretical basics of incineration. Basics concepts (from the very simple, such as the ideal gas law, to the complex, thermochemistry) are discussed in Chapters 4 and 5. In Chapter 6, thermochemical applications and the applications of the principles developed in the previous chapter are discussed. Discussed are fuel options, stoichiometric calculations, thermochemical calculations and utilization of chemical reaction principles.

Following the development of the fundamental science and principles underlying incineration, the authors turn to the description of systems in the third major section of this book. The topics range from descriptions of incineration systems to air pollution control for incinerator emissions. Under a major section titled “Equipment,” the following chapters were found:

- Hazardous Waste Combustors
- Waste Heat Boilers
- Quenchers
- Air Pollution Control Equipment
- Materials Handling and Ancillary Equipment

The final major segment of the book was designed to expose the reader to some aspects of the design for an overall waste incineration plan. The authors review the three chapters of this section:

The mechanics of the design process—the collecting of required information, preparation of schematics, application of material and energy balances plus other calculations, writing of a design report, and so on, are presented in Chapter 12. Economic analysis, an obviously important facet of any design procedure, is discussed in Chapter 13. Since illustrative examples often paint a clearer picture for the reader than textual presentation, the final chapter of this text, Chapter 14, consists mainly of two rather extensive plant design problems and their solutions. Since both problems involve overall facility design, these examples serve the function of merging many of the equipment design procedures presented earlier in the text into a more complete plant design package.

Included with the book is a floppy disk that contains an “HWI Software Package”. That disk contains three programs and two data files. The programs include (1) performing hazardous incineration calculations, (2) a tutorial and (3) an expanded version of the first section to allow for waste blending.

Reviewing this book was an enjoyable experience, perhaps because I was a consultant for a firm that had incinerators or perhaps because it is a text written by chemical engineering professors for chemical engineers (and chemical engineering students). The real reason reviewing the book was so enjoyable was because it is well-written and thoroughly covers the topic. It is replete with worked example problems and problems for student assignment. In conclusion, it is my judgment that this is a sterling book for both students and practitioners.

Gary F. Bennett

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Principles and practices of bioslurping

Matthew C. Place, Christopher T. Coonfare, Abraham S.C. Chen, Ronald E. Hoeppe, Stephen H. Rosansky (Eds.), Battelle Press, Columbus, OH, 2001, 190 pp., US\$ 65.00, ISBN 1-57477-107-8

The foreword to this book so well describes the problem posed by petroleum fuel contamination and the unique approach to it that I reproduce it here as the center point of my review.