

In fact, one of the prime merits of this volume is that it provides focus, amid a multitude of individual references, on just what constitutes the DIERS technology. It is written by key member of the DIERS coordinating committee, and gives a number of example problem solutions, thereby strongly providing a handbook flavor. This handbook style is enhanced by clear explanations in “how-to-do-it” style for processing of experimental results from laboratory-scale calorimetry. It is also a reference book since a substantial fraction of the pages detail experimental results from large-scale depressurization experiments.

It is not, however, a tutorial exposition, for derivations are not provided for the stated equations. The authors provide an extensive bibliography, and lean heavily on references for theory development. The book would be stronger if its brief theoretical development followed the more general treatment made in the referenced bibliography. For example, the equation used to find the critical pressure ratio for the homogeneous equilibrium model (HEM) is buried late in the book, and is not used in the early example calculations.

To its credit, the book is well focused. The authors avoid the temptation to treat reactor runaway theory while they discuss calorimetry. Unfortunately, they focus somewhat too narrowly on top-vented vessels in describing vapor–liquid disengagement. The derivation of a “coupling equation” is a bit obscure. There is an unfortunate mix of SI and English units used throughout, although in some sections, examples are given in both sets of units.

Altogether, this is a most welcome compendium, well written, in a useful form.

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Encyclopedia of Environmental Control Technology, Vol. 5: Waste Minimization and Recycling and Vol. 6: Pollution Reduction and Contaminant Control, by P.N. Cheremisinoff (Ed.), Gulf Publishing Company, Houston, TX, 1353 pages, 1992, \$155 (per volume)

According to the Editor, the main topic of the *Encyclopedia of Environmental Control Technology* is to “focus on in-depth coverage of the environmental and industrial pollution control areas. The volumes are intended to provide up-to-date information on technology, research, and future trends in this vast interdisciplinary field.”

Volume 5: Waste Minimization and Recycling

Twenty-five main authors from different fields of expertise contributed to this volume. Most of the chapters appear to be various technical papers.

Eleven of the chapters deal with municipal solid waste processing and municipal wastewater treatment as well as off-site recycling. Fourteen of the chapters address industrial (special and/or hazardous) waste processing, or so called end-of-pipe technologies, rather than waste minimization as it is commonly defined. Only one article deals in a systematic and logical way with waste minimization (source reduction) strategies. That chapter gives definitions of the terms used in the article which helps to understand its integrated approach towards solving of environmental problems.

In general our review found that *Volume 5: Waste Minimization and Recycling* does not correspond completely “in lighting new concepts, methodologies and solutions which include waste minimization and recycling strategies”, as it was suggested by the Editor in the Preface of this volume.

Overall we believe that this volume has its value in presenting municipal and industrial (special and/or hazardous) waste and wastewater processing and treatment technologies.

Volume 6: Pollution Reduction and Contaminant Control

This volume is dedicated to pollution reduction and contaminant control and “deals with a broad range of environmental problems and focuses on pollution reduction and containment areas”.

Twenty-three main authors from different fields of expertise contributed to this volume.

The following industries generating waste and wastewaters were considered and corresponding topics include waste processing and wastewater treatment technologies:

- (1) semiconductor manufacturing,
- (2) cleaning and metal operations,
- (3) leather tanning and finishing,
- (4) aluminum smelting,
- (5) wood preserving,
- (6) printing plant operations,
- (7) asbestos abatement,
- (8) chromium production,
- (9) petroleum processing and synthetic fuels.

Three chapters also include waste reduction and pollution prevention approaches for these industrial processes (and should probably be included in Volume 5).

Seven chapters are dedicated to different waste processing and wastewater treatment technologies (separation, peat pretreatment, incineration, vitrification, bioremediation), while three chapters deal with ground water contamination, sampling, monitoring and analytical techniques, as well as cleanup plan development. One chapter reviews environmental industry, one presents wastewater plan management, and finally, one deals with underground storage tank design and practice.

In general we think that *Volume 6: Pollution Reduction and Contaminant Control* presents technologies for “pollution reduction and contaminant control” as the Editor mentioned in the preface of this volume. However, the volume does not present pollution prevention and/or waste reduction technologies as defined in the U.S. Pollution Prevention Act of 1990 (Sec. 6602). It actually gives a broad overview of waste processing and wastewater treatment technologies.

In summary our review of both volumes underlined that while many of the papers are excellent, the volumes in total are not. The \$155 for each volume seems excessive.

R. OLBINA

Nickel and Human Health. Current Perspectives, edited by Evert Nieboer and Jerome O. Nriagu, John Wiley & Sons, Inc., New York, NY 10158, ISBN 0-471-50076-3, 680 pp., 1992, \$120.00.

This book, Volume 25 in the Wiley Series in Advances in Environmental Science and Technology, contains revised and updated papers presented at the Fourth International Conference on Nickel Metabolism and Toxicology, held in Helsinki, Finland, in 1988.

The initial chapter, written by a pioneer in work on nickel toxicity, provides an excellent historical account of the hazards from exposure to nickel in mining, refining, and processing. The essential role of nickel in several enzyme systems of plants, animals, and microorganisms is reviewed; although nickel is essential, the actual level needed is minimal. Routes of human exposure to nickel and levels to be expected in body fluids under OSHA, NIOSH and ACGIH exposure guidelines, as well as the toxicokinetics of the metal are discussed thoroughly. Analysis of nickel in biological materials, and the use of biological materials as an index of nickel exposure, along with several chapters on the biochemical, cytological and enzymatic aspects of nickel toxicity, especially to the kidney, are covered. The immunological aspects of nickel exposure, hypersensitivity, toxicity to the respiratory system and its various aspects are also included. There is a relatively long chapter which reviews animal studies with nickel, with emphasis on chronic-type experiments. The book concludes with surveys of respiratory cancer in various cohorts of nickel workers and miners.

Overall, this is a valuable compilation of studies on nickel which will be useful to anyone working in the field. It also would serve as an excellent background for anyone interested in the many aspects of the effects of nickel.

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