

**Process Design Tools for the Environment**

Subhas Sikdar, Mahmoud El-Halwagi (Eds), Taylor & Francis, New York, NY, 2001, US\$ 90.00, 480 pp., ISBN 1-56032-824-X

Pollution control technology has advanced a great deal since its early applications. But, end-of-the-pipe pollution control technology is giving way to more modern and efficient concepts. Initially, pollution prevention was the focus; now the thrust is for sustainable technologies. It is these latter topics that are the subjects of this book which was edited by and for chemical engineers, and it is written especially for those engineers involved in chemical process and plant design. Several chapters . . . “written by internationally recognized experts . . . discuss a wide variety of emerging and dominant design tools that allow deliberate process design from the outset to achieve pollution prevention.”

The editors note that “Several approaches to cleaner process design are presented in this book. Some procedures are focused on relatively few unit operations and species in a flow sheet, whereas others tackle an entire process plant, and still others relate the process to the larger environmental surroundings. The systematic and quantitative in nature. These procedures also attempt to reconcile metrics of cost, quality, safety, and environmental impact. This is the road to sustainable industrial processes.”

The editors have written a two-part introduction entitled “Process Design Tools for the Environment” and “Environmental-Based Assessment and Environmental Design.”

This introductory section is followed by 17 chapters under four major headings: (1) Environmental-based assessment and review of design. (2) Integrated process synthesis and screening of technologies for pollution prevention. (3) Macroscopic design and environmental impact assessment. (4) Molecular design and benign chemistry.

While some of the chapters are philosophical discussions (e.g. Chapter 4, “Challenges for Applying Process Integration Design Methodologies for Waste Reduction Within Chemical Process Companies”), others are rigorous analytical treatises (e.g. Chapter 6, “Process Integration, Synthesis, and Analysis for Cleaner Processes”).

The editors note that “The book is . . . [intended] . . . for professionals involved in researching or implementing process design tools as well as students taking course in chemical engineering design.”

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**Quick Selection Guide to Chemical Protective Clothing, 4th edition**

Krister Forsberg, S.Z. Mansdorf, John Wiley & Sons Inc., New York, NY, 2002, US\$ 42.50, 155 pp., 4.5 in. × 8 in. size, ISBN 0-471-27105-5

Concern for chemical releases, as important as it was in the past, is even more so after the September 11, 2001 terrorist incidents. Consequently, not only are incident responders concerned with the dangers associated with commercial chemical releases, but also they must be prepared for intentional releases of toxic chemicals and biological materials by

terrorists. The 4th edition of this guide to the selection of chemical protective clothing is welcome.

The intent of the *Quick Selection Guide to Chemical Protective Clothing* is to assist workers, supervisors, safety and health professionals, spill responders, industrial hygienists, and others in the initial selection of protective clothing materials against specific chemical challenges on the job. This task is accomplished by use of color-coded tables that summarize the chemical breakthrough performance of 16 common barrier materials against 700 chemicals organized in 90 chemical classes.

The authors also note the existence of a website (<http://www.kristerforsberg.com/cpc/>) for access to the publisher of performance data publications or manufacturers' sites via the Internet. The *Quick Selection Guide to Chemical Protective Clothing* also provides users with knowledge about the permeation process and other factors that adversely affect protective clothing. In addition, this guide also contains a discussion of the selection and use of protective clothing. Finally, a glossary of terms common to chemical protective clothing and related health and safety terminology and a section on relevant standards for chemical protective clothing has been included to assist users of this guide.

Section II is entitled "Selection and Use of Chemical Protective Clothing." After reviewing "important terms," such as permeation, degradation, and penetration prior to a discussion of the selection process. In Section III, the authors list chemical names and synonyms (in alphabetical order) that are used to find the chemical class number. Other information provided is a chemical abstract service (CAS) registry number, risk codes, and special notes.

"Selection Recommendations" is the title of Section IV. This section contains the color-coded recommendations for protective barriers. Sixteen protective barriers are contained in the data tables. They represent materials that are used in construction of gloves, boots, suits, and other items of protective clothing.

Section V contains a glossary of the terms related to the earlier sections of the book and the use of chemical protective clothing. Section VI contains lists of standards for protective clothing (e.g. ASTM, ISO, etc.). The book ends (Section VII) with "... a partial listing of manufacturers publishing test results of the resistance of their barrier material by any standard test method."

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