

PCBs and fluorocarbons have been the subject of such intense interest and subsequent governmental regulations.

The 1980s, it appears, will be the decade of the toxic compounds (equated to cancer by most non-scientists). Although the bases for the control of such chemicals are already embodied in the major U.S. environmental laws, many environmentalists feel that control of potentially cancerous chemicals has not been effected to the degree they desire.

Prior to control (laws), fate and effects must be known. This three-volume work is directed towards that goal. It constitutes a comprehensive summary of the present state of the art of knowledge, of which this, the third volume, deals with polycyclic aromatic hydrocarbon research, particularly in relation to cancer. It provides a useful research source for those regulators needing (and desiring) a scientific basis for regulations.

In the three volumes there are extensive reviews and reports by workers from the basic biological and chemical fields describing the research into polycyclic aromatic hydrocarbons.

This particular volume contains eight chapters, most of which deal with biochemical effects or the metabolism of aromatic hydrocarbons.

GARY F. BENNETT

Chemical Plant and its Operation (including safety and health aspects), by T.M. Cook and D.J. Cullen, Pergamon, Oxford, 2nd edn., 1980, 173 pages, \$9.00 (£4.50) flexicover or \$20.00 (£10.00) hard cover.

Written as a textbook for chemicals operators, process workers, plant technicians and maintenance staff, this manual contains a practical description of equipment and processes currently being used in chemical and allied products industries. The written material is supplemented by excellent diagrams which illustrate basic principles of the equipment and its operation.

The last two chapters are of special interest to readers of this journal. They are: (1) safety in chemical plant operation, (2) preliminary rules for first aid. The former discusses why accidents occur, basic safety rules, hazard detection, personnel-protection equipment (including cannister-type breathing masks, but not self-contained breathing apparatus) and pressure and vacuum systems. The material presented is good but only preliminary, i.e. for the cannister mask, no data are given on limits of usage or the maximum gas concentration one is allowed to be exposed to — so the book may be a good beginning for training if supplemented with detailed material by those trained in Industrial Hygiene, etc.

It's always easy for a reviewer to find something missing, and I do that in this case, not as a criticism but as a suggestion for future volumes, and that is to include fire-fighting information as a supplement to the safety chapter.

Not only should the book be useful to operators, but it could also be used as a text in two-year chemical technology programs of which there are several in the United States.

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Hazardous Waste Leachate Management Manual, by A.J. Shuckrow, A.P. Pajak and C.J. Touhill, Noyes Data Corporation, Park Ridge, NJ, 1982, 379 pages, \$36.00.

This manual was written by Shuckrow et al. under a contract with the U.S. Environmental Protection Agency which wished to provide a guidance document for their personnel involved with hazardous waste sites and especially for those at the front end, i.e. writing permits for sites.

It was my good fortune to be involved with the authors during the execution of this contract as a critical reviewer of the draft report to the USEPA — hence I shall restrict my review to a factual rather than a judgmental evaluation.

The book begins with a short section on leachate generation and the physical, chemical and biological influences on that process. The second, slightly longer section, examines hazardous waste leachate characterization; included is an 11-page table summarizing the contaminants and the concentrations reported in leachate.

The next three Sections (4, 5 and 6) deal with the leachate treatment technology that must be utilized to render it suitable for discharge. The final two sections of the main part of the book deal with monitoring and other important considerations (including safety, contingency plans, equipment backup, permits and surface runoff).

The last two-thirds of the book are appendices, which include:

- (a) Summary of reported water contamination problems at hazardous waste disposal sites.
- (b) Listing of RCRA pollutants, unit process summaries — sanitary landfill leachate treatment.
- (c) Unit process summaries — industrial wastewater treatment.
- (d) Treatability of leachate.

The last of these appendices (treatability) actually takes up about half of the book. The authors report on the treatability of a wide range of chemicals by biological processes, chemical precipitation, reverse osmosis, ultrafiltration, stripping, solvent extraction, activated carbon and resin adsorption.

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