

Book Reviews

Contaminated Surface Soils In-Place Treatment Techniques, by R. Sims, D. Sorenson, J. Sims, J. McLean, R. Mahmood, R. DuPont, J. Jurinak and K. Wagner, Noyes Publications, Park Ridge, NJ, 1986, ISBN 0-8155-1085-3, 536 pages, \$65.00.

In-place treatment technologies applicable to contaminated surface soils, less than 2 feet in depth, are described in this book which has been written in two parts. Part I discusses the selectivity of appropriate in-place treatment technology for a participating site:

- Extraction
- Immobilization
- Degradation
- Modification of Soil Properties
- Cost

Part II of the book provides monitoring information and data on the behavior of hazardous constituents in the soil with an especially extensive appendix on the parameters for assessing soil-waste interaction.

GARY F. BENNETT

The Common Sense Approach to Hazardous Materials, by F.L. Fire, Fire Engineering, Barrington, NJ, 1986, ISBN 0-912212-11-X, 364 pages, \$34.95.

The title of this book aptly describes its content. It is a text that I could happily use in teaching a course for non-technical, first responders (i.e. fire fighters) to hazardous materials spills. However, those first responders would have to be motivated to go back one step from "how to", to "why". This book gives the "why" chemicals react as they do, and why they are dangerous, based on a knowledge of chemical structure. In essence, it is really a basic chemical text with material arranged in a hazardous materials mode.

The first six chapters contain the fundamentals:

- Basic Chemistry — i.e. periodic table
- Compounds
- Covalent Bonding
- Hydrocarbons
- Hydrocarbon Derivatives
- Fire and Pyrolysis

With Chapter 7, the authors begin a study of individual classes of materials each in a separate chapter:

- Flammable and Combustible Liquids
- Compressed Gases
- Flammable Solids
- Cryogenic Gases
- Oxidizing Agents
- Plastics
- Corrosives
- Unstable Materials: organic peroxides and monomers
- Toxicity
- Radioactivity
- Explosives
- Water- and Air-reactive Materials

The book is a logically designed, easy-to-read text, for the chemical engineer or chemist. It will however challenge, but I believe well-educate, the non-chemical person. If a first responder could (or would) master the material in this text, he'd be well along the way to learn why chemicals react the way they do and on the base of a chemical name discern its danger to himself and the environment.

While reviewing the text, the local news reported a spill of aluminum chloride in the community, during an intense rain; clearly there was a danger of the evolution of HCl. Checking what a trained user of the book would have gotten, I looked up AlCl_3 to find it in Chapter 18 under water- and air- reactive materials as an inorganic chloride. The book notes that although most inorganic chlorides are stable (and dissolve) in water such as alkaline metals and alkaline earth metal chlorides; many others are water reactive. AlCl_3 is in that group and HCl will be evolved. Correct analysis — consistent with what happened.

As I said at the beginning of this review, this is the chemical book that I would adopt for serious first responder training.

GARY F. BENNETT

Removal of Volatile Organic Chemicals from Potable Waters: Technologies and Costs, by Environmental Science and Engineering, Inc., Noyes Publications, Park Ridge, NJ, 1986, ISBN 0-8155-1099-3, 232 pages, \$36.00.

Groundwater is a major United States resource, but chemical spills, uncontrolled hazardous waste sites, and leaking underground storage tanks have caused significant contamination problems and a considerable part of that contamination is a result of volatile organic chemicals.

This book reviews technologies for the removal of volatile organic chemicals from potable water and provides cost estimates for those systems.