

- 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.

In short, the two major removal technologies are: (1) aeration and (2) adsorption on activated carbon — although reverse osmosis is mentioned for limited home use. Detailed costs are given for all systems.

GARY F. BENNETT

Hazards in the Chemical Laboratory, by L. Bretherick (Ed.), Royal Society of Chemistry, London, UK, 4th edn., 1986, ISBN 0-85186-489-9, xiv + 604 pages, £29.50 (approx. \$54.00).

Hazardous chemicals are much in the news — from large shipments that have caused massive public disruption to small scale, but often dangerous reactions in the laboratory. This excellent book deals with the latter. The authors have stated:

“It is against this background that one should look at this edition of the handbook. The contributors have attempted to indicate and discuss the dangers likely to arise in the laboratory and have offered practical advice on their avoidance.”

The book has eight chapters in addition to the introduction. By title the chapters are:

- Health and Safety at Work Act, 1974
- Safety Planning and Management
- Fire Protection
- Reactive Chemical Hazards
- Chemical Hazards and Toxicity
- Health Care and First Aid
- Precautions Against Radiation
- An American View

The major share of the book (415 pp.) is devoted to information describing the hazardous properties of 490 flammable, explosives, corrosives and/or toxic substances or groups of substances, commonly used in chemical laboratories.

Information given for each chemical includes:

- Firefighting Procedures
- First Aid
- Spill Cleanup
- Identification of Carcinogens
- Dangerous Reactions
- Toxic Effects
- Disposal

GARY F. BENNETT