

## Book Reviews

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*Hazards in the Chemical Laboratory*, by S.G. Luxon (Ed.), The Royal Society of Chemistry, Cambridge, UK, ISBN 0-85186-229-2, 1992, 5th edn., xx+676 pp., £ 45.

Environmental Science and Laboratory Safety have taken on increasing importance in recent years. And so have the books published on these topics. This book is the fifth edition of the *Hazards in the Chemical Laboratory* to be published by the Royal Society of Chemistry. The first, published in 1971, was a successor to the 1960 Laboratory Handbook of Toxic Agents (revised in 1966).

The following list of chapters illustrate the scope of the book. After each chapter title, I have briefly described its contents:

1. Introduction — an overview of management task; fire, explosion, toxic reaction, chemical, radiation, and electrical hazards are described.
2. Legislation — describes recent (UK) developments, and, in particular, the Regulations for Control of Substances Hazardous to Health and especially their impact on laboratory operations.
3. Safety Planning and Laboratory Design — discusses the general implications of the regulatory framework and in particular, good laboratory design.
4. Fire Protection — discussed are the nature and source of fire risk, structure protection, controlling ignition sources, emergency action, fire extinguishing agents and pertinent regulations.
5. Reactive Chemical Hazards — written by L. Bretherick, the well-known author of his own classic tome on this topic. This chapter discusses the causes, routes and effects of chemical reactions, hazardous mixtures, potential storage hazards and chemical hazard precautions.
6. Chemical Hazards and Toxicity — along with the Safety Planning Chapter (3), I believe this is one of the most important chapters in the text. Toxicity, the effects of chemicals on the body, is a rapidly evolving and important field, but one too often ignored by chemists and chemical engineers. Discussed are the basic rules of toxicology, kinetics and metabolism dose and damage, toxicity testing, predictive value of toxicity tests, exposure as a measure of relative hazard, and the consequences of toxic exposure.
7. Control of Health Hazards — this chapter is in two parts. The first part deals with health hazard control by monitoring, health surveillance, biological monitoring, and occupational health services. The second part of the chapter deals with first aid.
8. First Aid — having been introduced in the previous chapter, this topic gets a whole chapter to itself.

9. **Precautions Against Radiation** — this chapter provides information on new UK requirements (Ionizing Radiation Regulations and the approved Code of Practice); non-ionizing radiation is also discussed.
10. **Electrical Hazards** — a discussion of newly promulgated regulations is the heart of the chapter; also discussed, however, are: what are electrical hazards, guidance in electrical systems and equipment, design of electric installations, portable equipment, fume hoods, and maintenance.
11. **Chemical Laboratories, an American View** — this chapter was written by H.H. Fawcett, a member of the editorial advisory board of this Journal and author of several books on chemical safety. Key to the chapter is a discussion of the U.S. Occupational Health and Safety Act (OHSA) chemical laboratory standards.

So ends 175 pp. of text to be followed by over 450 more pages consisting of approximately half-page listings describing briefly the hazardous properties and effects upon the human body of approximately 1400 flammable, explosive, corrosive, and/or toxic substances commonly used in the chemical laboratory.

For each chemical, the following data (if available) are given:

- Name
- Physical description
- Risk
- Safety precautions
  - limit value
  - toxic effects
  - hazardous reactions
  - first aid
  - fire hazard
  - spillage disposal
- Reference to the Royal Society of Chemistry Data Sheets, published in a series of books which have been reviewed in this journal as they appeared.

GARY F. BENNETT

*Emergency Planning and Community Right-to-Know Act (EPCRA) Handbook: A Handbook Covering SARA Title III Laws and Regulations*, by J.G. Arbuckle, T.A. Vanderver, Jr. and P.J. Wilson, Government Institutes, Inc., Rockwell, MD, 4th edn., ISBN 0-86587-272-4, 1992, 192 pp., \$67.

In the preface the authors write...

“It is now five years since the Emergency Planning and Community Right-to-Know Act became law. [The U.S.] EPA’s regulatory programs that implement that statute have reached maturity, and the ramifications of this important law are beginning to be recognized by all of the parties touched.”