



Book reviews

Hazardous Chemicals Handbook, 2nd Edition

P.A. Carson, C.J. Mumford, Butterworths–Heinemann, Woburn, MA, 2002, US\$ 85.95, 620 pp., ISBN 0-7506-4888-0

In the preface, the authors write:

The aim of this book remains as for the first edition, namely to provide an initial point of ready reference for the identification of hazards and precautions for dangerous chemicals. It is targeted not only at those in the chemical and process industries, but also anyone likely to work within industry and in the service sector, e.g. hospitals, universities, research laboratories, storage, processing, marketing, use and eventual disposal and should it appeal to chemists, occupational and environmental health practitioners and students, engineers, waste handlers, safety officers and representatives, and health care professionals.

The book contains a combination of advice on the storage, use and handling of chemicals, of the laws covering these processes (both UK and US laws are cited) and copious amounts of chemical information and data, especially data on health and safety of chemical use.

With 70,000 chemicals in use daily and 500–1000 chemicals added yearly, data on their safe handling and use are critical. This book provides much of that information.

The problem posed by chemicals is addressed by the authors in the Introduction.

The hazards of ‘chemicals’ stem from their inherent flammable, explosive, toxic, carcinogenic, corrosive, radioactive or chemical properties. The effect of exposure on personnel may be acute, e.g. in a flash-fire or due to inhalation of a high concentration of an irritant vapour. Alternatively, prolonged or intermittent exposure may result in an occupational disease or systemic poisoning. Generally, acute effects are readily attributable; chronic effects, especially if they follow a long latency period or involve some type of allergic reaction to a chemical, may be less easy to assign to particular occupational exposures. The possible permutations of effects can be very wide and exposure may be a combination of hazards. For example, personnel exposed to a fire may be subject to flames, radiant heat, spilled liquid chemicals and vapours from them, leaking gases, and the pyrolytic and combustion products generated from chemical mixtures together with oxygen deficient additives. However, whether a hazardous condition develops in any particular situation also depends upon the physical properties of the chemical (or mixture of chemicals), the scale involved with circumstances of handling or use, e.g. the processes involved and

degree of containment, and upon the control measures prevailing, e.g. provision of control and safety devices, local exhaust ventilation, general ventilation, personal protection, atmospheric monitoring and systems of work generally.

Following that description of the problem posed by hazardous chemicals in their introductory chapter, Carson and Mumford have two very elementary chapters: (1) Terminology and (2) General Principles of Chemistry. Personally, I would have relegated the Terminology chapter to the appendix and may very well have omitted the Basic Chemistry chapter in this very "applied" text.

Physicochemistry (vapour pressure, gas-liquid solubility, density, immiscibility, vapour flashing, critical temperature, etc.) are covered in Chapter 4.

For me, the book really begins with the Toxic Chemical chapter (Chapter 5). Hazard recognition, types of toxic chemicals (irritants, sensitizers, asphyxiants, poisons and carcinogens) are discussed. Risk assessment and risk control are covered. Included in this chapter is a 30-page table containing data on hygiene standards (TWA and STEL; both US and UK limits are given) and air odour thresholds. This table is one of a very large number of data-containing tables in the book. Another extensive table contains data on the risk control area; it is a 13-page long table containing a list of substances assigned a R45 or R49 (carcinogen) risk. As indicated, the amount of data in this chapter is large. I counted 58 separate data-containing tables.

Subsequent chapters are entitled Flammable Chemicals, Reactive Chemicals, Cryogenics, Compressed Gases, Monitoring Techniques, Radioactive Chemicals, Safety By Design, Operating Procedures, Marketing, Transport of Chemicals, Chemicals and the Environment: Sources and Impact, and Chemicals in the Environment: Monitoring and Protection.

There is one short appendix reporting on selected UK legislation relevant to environmental protection and occupational health and safety in relation to chemicals.

One is impressed by the amount of information and advice provided by the authors. In my opinion, it is an excellent book.

Gary F. Bennett

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Proceedings of the Twenty-fifth Arctic and Marine Oil Spill Program (AMOP) Technical Seminar

Environment Canada, Ottawa, Ontario, Canada, 2002, 2 vol., no price given, 1369 pp. ISBN: none

Held in June 2002 in Calgary, Alberta, under the auspices of the Environmental Protection Service, Environmental Technology Advancement Directorate of Environment Canada, this annual seminar published 88 peer reviewed papers presented by both Canadian and foreign authors. Prominent among these authors is M.F. Fingas of Environment Canada who is author or co-author of 10 of these papers; he serves on the Editorial Board of this journal.

I was impressed by the wide range of paper topics and their geographical sources. By my count, papers came from 14 countries in addition to the US and Canada and they were