

data sheets by the Royal Society of Chemistry is simply excellent and a must for any one seriously involved in hazardous material response.

This volume, the fifth in the Royal Society's sets out in a clear standardized form, information on 80 flammable chemicals. As noted, data are given on a wide variety of flammables including acetate, butane, diborane, ethyl mercaptan, methane, propane, sulfur, titanium and zinc.

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

- risk and safety precaution
- identifiers
- synonym
- chemical abstract number
- NIOSH number
- Hazchem code
- UN number
- threshold limit value
- USA threshold limits
- UK exposure limits
- German MAK value
- French limits
- Swedish limits
- physical properties
- packaging and transport
- manufacturer
- uses
- chemical hazards
- biological hazards
- carcinogenicity
- mutagenicity
- reproductive hazards
- first aid
- handling and storage
- disposal
- fire precautions

I fully agree with S.G. Luxon who writes in the preface:

"I believe this book provides a concise, systematic treatment of the subject that is clear and visually pleasing, and which will enable users to identify their overall responsibilities in respect to the listed chemicals."

The book ends with an index (including synonyms) of all these chemicals. A flash point index is also found.

My only hope is that when the series is finished, the Royal Society will publish a volume listing all the chemicals and synonyms telling in which informational volume the chemical is to be found. This source (or appropriate volume) is not obvious in that I would not ordinarily think to look for information on titanium in a book of flammable chemicals.

GARY F. BENNETT

Remediation Manual for Petroleum-Contaminated Sites, by D. L. Russell, Technomic Publishing, Lancaster, PA, 1992, ISBN 0-87762-876-9, 175 pp., \$49.

Of all the site contamination problems, the presence of petroleum products from spills, industrial discharges or leaking underground storage tanks is most common. Thus this manual, which is designed to assist with the cleanup of gasoline- and diesel-contaminated retail outlets and bulk terminals will be very useful to cleanup personnel.

Appropriately the book begins with a discussion of the regulations governing the cleanup of petroleum-contaminated sites: CERCLA; SARA; Safe Drinking Water Act; RCRA; Underground Injection Control Program; air, water, fire, health and safety regulations; and construction and operating permits are all covered. Then, the author moves to a general discussion (introduction/overview) of cleanup strategies, corrective action plans, contracting (and contractor management), remedial design:

- incineration
- pump-and-treat
- reinjection
- soil washing
- vapor stripping
- air stripping
- carbon adsorption/vapor incineration of emitted organics
- chemical treatment
- ion exchange

Chapter 2 discusses data required for site cleanup planning. In that chapter, the author notes that the most important task in the development of a site assessment remedial plan is the collection and analysis of accurate data on the geology, hydrology, area extent of contamination and identification and measurement of concentration of contaminants.

Chapter 3, is the core of the book as it discusses the selection of remedial options, based on the data obtained. Chapter 3 also discusses the installation of trenches or drains, wells, waste treatment systems, incineration, soil washing, bioremediation, and solidification containment.

I cannot attest to the accuracy of the data but Chapter 4, Costs of Remedial Action, appears to be one of the most informative chapters of the text. Good cost data in general are hard to find in engineering texts. Russell gives over 50 pages of tabulated and plotted cost data covering all aspects of the remediation process from initial exploration through laboratory analysis. The book contains no index but has an excellent, detailed table of contents.

My overall assessment is that this is a very good book and should be on the shelf of anyone interested in site cleanup.

GARY F. BENNETT

Groundwater Modelling Utilities, by William C. Walton, Lewis Publishers, 121 South Main Street, Chelsea, MI, 48118, 1992, L679, ISBN 0-87371-679-5, 629 pp., \$95.

This book was written to assist the groundwater modeler in applying a subset of models on microcomputer platforms. The author notes that while models are being used at an increasing rate, transfer of codes from the mainframe to microcomputer stations has not been accompanied with a commensurate level