

The book ends with a short chapter on source reduction. Although not exhaustive, what was written makes a good introduction to a very important topic.

My only major criticism of the book is the lack of reference to other articles and books on this topic. Conversely, reference to government regulations is quite complete.

The book has an excellent (seven-page) detailed table of contents, eight appendices (audit forms, regulations, etc.), and a comprehensive index.

I recommend the book to those newly entering the hazardous wastes arena — which arena unfortunately reminds me of the Roman game when the slaves faced ferocious animals.

G. F. BENNETT

Hazards in the Chemical Laboratory, 5th edn., edited by S.G. Luxon, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge CB4 4WF, United Kingdom or CRC Press, Inc., 2000 Corporate Blvd., N.W., Boca Raton, FL 33431, 1992, ISBN 0-85186-229-2, 675 pp., £45.00, or \$99.95 + 7.50 delivery.

This is a revised, updated and expanded version of a volume which was first published in 1971. The fifth edition covers the latest regulations of the European Community and United Kingdom relating to chemical laboratories, and even includes a chapter on the American viewpoint. Legal aspects of laboratory work introduce the text, followed by safety planning and laboratory design. Fire protection receives an excellent treatment, while reactive chemical hazards, as reviewed by the previous editor, Leslie Bretherick, are given full attention. Chemical hazards and Toxicology, as well as control of health hazards, are noted in detail, as are; first aid treatments and procedures for chemical exposures. Radiation and also electrical hazards are assessed in terms of the laboratory.

Perhaps the most valuable part of the book is the quick guide to the hazardous properties of nearly 1400 substances, which, along with labeling requirements, give quick and authoritative references in an easy to read form. An index of CAS Registry Numbers is included.

This is a very practical volume, and should be available on a wide basis, in school, college, and industrial laboratories.

HOWARD H. FAWCETT

Hazardous Metals in the Environment (Techniques and Instrumentation in Analytical Chemistry, Vol. 12), edited by M. Stoeppler, Elsevier Science Publishers, Amsterdam, 1992, ISBN 0-444-89078-5, X + 542 pp., \$225.50/Dfl 395.00.

The potential human and environmental impact of heavy metals has resulted in significant effort being expended in the study of their source, fate and

transport, analysis and toxicology. Key to these studies is an accurate determination of the metal content of liquids and solids. Thus, the rapid progress in methodology in this area has dictated a need for periodic update and review of the field. That is the purpose of this multi-authored text, and it is well accomplished.

The book has 17 chapters contributed world-wide (with many from Europe) by experts in each area, and each chapter is exceedingly well referenced. The shortest chapter reference list has 31 entries; the longest 445. References in the complete book exceed 3400 in total! One minor point here is even at the expense of adding more pages to the book, I would have liked to have seen titles of all papers cited and not simply author, journal, pages. For me, the title of a cited paper gives a great deal of information. Given the European source of the book, it is not surprising the literature cited leans heavily on their (European) literature. That is excellent for non-European readers, but I note that much U.S. literature has been missed in the one area I was keenly interested in — leaching.

The book offers the reader a general introduction to the problem areas that are currently under study. Following the introduction (by the editor), there are chapters on sampling and sample preservation, strategies and application of the archiving of selected representation specimens for long-term storage in environmental specimen banks.

In this section is an intriguing chapter on the analysis of metals in wine, as a preserved, frequently already historical specimen that clearly reflects technological change over time — this changing technology being the use of different materials in producing and growing grapes over time and the use of different pesticides such as arsenic many years ago. Generally, metal concentrations in wine have fallen, not unexpectedly, with time. I was interested in comparing metal existing and allowable (by German Standards) metal concentrations.

Metal	Century	Mean concentration (µg/L)	Allowable concentration (µg/L)	
			Wine	Water
Cd	18th	5.0	10	—
	19th	3.9		
	20th	1.9		
Pb	18th	2680	300	—
	19th	4320		
	20th	611		
Co	18th	6.8	—	—
	19th	13.9		
	20th	7.9		

The second part of the book provides information on analytical methods in determining the levels of a number of toxicologically, ecotoxicologically and ecologically important elements in environmental and biological materials including information on the separation and quantification of chemical and organometallic species.

There are two general chapters in this section:

- (i) Analytical methods and instrumentation — a summary overview
- (ii) Chemical speciation and environmental mobility of heavy metals in sediments and soils

Following these two beginning chapters are separate chapters dealing with the analysis of specific heavy metals: cadmium, lead, mercury, arsenic, thallium, chromium, nickel, cobalt, aluminum, and selenium. The closing chapter treats quality assurance approaches and discusses the paramount importance of appropriate reference materials to avoid incorrect data (results).

GARY F. BENNETT

Environmental Due Diligence Handbook, 2nd edn., by W.J. Denton, D.L. Loos, L.M.A. Hamburg, S.H. Welman, J.C. McDonald and J.C. Mauch of Greg & Tucker (Law firm) and Environmental Audit, Inc. Government Institutes, Rockville, MD, 1991, ISBN 0-86587-245-7, 308 pp., \$74.00.

This book is intended for use as a basic guide to the developing process of due diligence, which can reasonably be described as a flexible use of processes and techniques intended to allow an interested party (lender, buyer, fiduciary, etc.) to evaluate the potential environmental risks associated with business transactions involving real estate.

The rapidly developing field of due diligence in the U.S. was spawned by the liability by CERCLA (Superfund), wherein parties who have no involvement with the hazardous substance contamination of the property may be found liable for every expensive cleanup of that property. In response, U.S. Congress provided some relief in SARA by providing an Innocent Landowner Defence which allows parties to avoid liability, if at the time of acquisition, they made every "reasonable" inquiry regarding the property.

The legal consequence of failure to conduct environmental due diligence is that the party acquiring the property cannot make a good faith claim of the innocent landowner defense if the property is later discovered to be contaminated. The practical problem is that the purchaser obtains property without making inquiry into its real value, i.e., is he paying more for the property than it is worth, given the contamination?

Actually the book goes beyond the limited, but important topic stated in its title giving the reader advice on how to assess the property's compliance with all environmental laws and an admonition to assess future environmental compliance problems.