

and illustrated. The routes of entry of chemicals into the body are noted in some detail. Examples of chemicals with specific effects are included.

Fire and explosion hazards are analyzed, and the application of this information to fire protection is clearly shown. Various ignition sources are stressed, including caution to prevent the mixing of incompatible chemicals. Importance of the proper extinguishing agent for fires (there are at least 22 in use in the world today) is included.

Basic principles of accident prevention are reviewed, such as elimination or substitution, shielding or distance, removal of fumes and vapors, use of personal protective equipment (for eye and face, breathing by use of respiratory equipment of the proper type for the job at hand, wearing of chemical resistant clothing, gloves, and proper shoes). Safe storage of hazardous chemicals is clearly illustrated and recommended.

Emergencies can happen in spite of all precautions. Hence, chemical emergency procedures, paying full attention to a well-organized and publicized emergency plan, includes evacuation if necessary, and sources of specific help and medical evaluation before work with the materials begins.

This is an excellent training manual. I should suggest, however, that in future editions degrees F are given along with degrees C, as for other units used in the U.S. and Great Britain. Eye protection should be stressed more strongly. Emergency phone numbers — such as the CHEMTREC emergency number 1-800-424-9300 or 1-800-262-8200, or the American Chemical Society Chemical Information number, 1-800-227-5558, option 6 — are available to callers with chemical problems anywhere, and should be included.

I recommend this volume; it is a most practical training aide.

HOWARD H. FAWCETT

Calculated Risks, The Toxicity and Human Health Risks of Chemicals in our Environment, by Joseph V. Rodricks, Cambridge University Press, Cambridge, Great Britain, 1992, 256 pp. (hardcover) with index plus preface and prologue of xxv pp., ISBN 0-521-41191-2, \$22.95.

Although written to provide the layperson with an overview of toxicology, this book would serve well as introductory material for anyone interested in the fields of toxicology, carcinogenesis, or risk assessment. To capture one's attention, the story of Turkey X disease in Britain, leading to the discovery of aflatoxin, is presented in the prologue. The following chapters then cover some elementary aspects of organic chemistry, the development of chemical industry, advances in analytical chemistry (which often complicate regulatory matters), metabolic processes, and the relationship of metabolism to toxicity, where both acute and chronic aspects are discussed. There is a chapter on carcinogenesis which leads into assessment of risks, societally acceptable

risks, uncertainties in risk assessment, regulatory aspects of risk assessment, and the social pressures on the fields of toxicology and risk assessment. The book is well-written and easy to read. The system of having all the references and source material in a separate final chapter detracts somewhat from the ease of using this otherwise excellent book.

ELIZABETH K. WEISBURGER

Air Monitoring for Toxic Exposures — An Integrated Approach, by Shirley A. Ness, Van Nostrand Reinhold, New York, 1991, ISBN 0-442-20639-9, 534 pages, \$79.95 (available on 15-day exam from Van Nostrand Reinhold, Mail Order Dept., P.O. Box 668, Florence, KY 41022-0668, USA)

This timely volume (see *Wall Street Journal*, 29 March 1993, page 1, Clearing the Air) is a practical approach to performing sampling surveys, explaining in considerable detail both the equipment used and the technique required. The author is senior industrial hygienist of the Amoco Oil Whiting, Indiana refinery and has included discussions of bioaerosol sampling, dermal exposure methods, toxic effects of chemicals and their impact on sampling strategies, new trends in particle size-selective sampling, the use of real-time and direct-reading instruments and data loggers, the EPA and OSHA techniques, and includes sampling strategies for surveys including indoor air, asbestos, confined space, and industrial exposures. Even radon is included in a non-emotional manner. Human emissions, including breath and urine are discussed with the techniques necessary to sample and analyze them properly. A table lists 24 compounds, with their infrared wavelengths which are recommended for breath screening. Soil sampling is discussed, with procedures for surface soil and also sub-surface soil sampling. Tank sampling, as well as sampling drinking water in the plant, are discussed in detail.

This is an excellent presentation, with numerous photos, of the real-world problems encountered in sampling and analysis of injurious toxic exposures. It is highly recommended as an update to present techniques widely used in industry and other industrial hygiene areas.

HOWARD H. FAWCETT

Laboratory Experiments in Environmental Chemistry, by M.G. Ondros, Wuerz Publishing, Ltd., 895 McMillan Ave., Winnipeg, NB R3M 0T2 Canada, 1993, ISBN 0-920063-52-7, 128 pp., paperback, \$19.00 (plus postage).

This laboratory manual is intended for students with a basic knowledge of chemistry, with 20 experiments requiring 1.5 to 3 hours each. The author is