

Metal/Cyanide-Containing Wastes; Treatment Technologies, by S.A.K. Palmer, M.A. Breton, T.J. Nunno, D.M. Sullivan and N.F. Suprenant, Noyes Data Corp., Park Ridge, NJ, 1988, ISBN No. 0-8155-1179-5, 721 pp., \$74.00.

The Resources Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments of 1984, strictly regulates the land disposal of numerous types of hazardous waste, among these being wastes containing metals and cyanides of various concentrations.

The book provides a review of the regulatory background (complying with the above laws) and a summary of the current hazardous waste management data base. The introductory (regulation) background is followed by information on waste minimization, techniques and an evaluation of a wide range of treatment/recovery processes for metal- and cyanide-containing wastes.

Specific chapters include:

- Metal/cyanide waste sources and characterization
- Waste quantity management practices and treatment capacity
- Waste minimization processes and practices
- Membrane separation technologies for metal removal
- Extraction for metal removal
- Adsorption for metal removal
- Electrolytic processes
- Chemical treatment/removal program for metals
- Biological treatment for metal-containing waste
- Thermal destruction/recovery process
- Physical removal processes for cyanide
- Chemical destruction of cyanide
- Miscellaneous cyanide destruction processes
- Consideration for system selection

Because the book was written by a consulting firm as a government report, i.e. by a U.S. Environmental Protection Agency contractor, it is not deep in its treatment of the topic but is a comprehensive survey of the latest techniques and the literature on the topic as well.

Indeed, the book is well-referenced. Those needing information on the topic of cyanide/metal waste treatment will be well-advised to seek out this book. It makes a good beginning.

GARY F. BENNETT

Dust Explosions, by W. Bartknecht, Springer-Verlag, Berlin, 1989, ISBN 3-540-50100-2, 270 pp., \$ 80.00.

Dust represents the most hazardous form of solid matter, especially organic and metal dusts. Dust may be considered a phase of its own with very special

characteristics. This book summarizes present knowledge of the cause, course, and consequences of dust explosions.

Since the windmill was introduced in 1752 for grinding cereal grains, dust explosions have been reported. Although grain was involved in a quarter of such explosions in the U.S. during 1900–1952, wood, feedstuff, flour, starch, cork, sugar, plastics and other substances have been recorded. In recent years, silos and bunkers, grinding plants, conveyors, separators and dryers have been the scene of dust explosions. For an ignition source, mechanical sparks, smoldering particles, mechanic heating and static electricity are known sources.

Possibly the most useful chapter in the book is Chapter 5 on protective measures. The range of options is broad – from inerting, prevention of effective ignition sources and hot surfaces, proper design of equipment, and process venting. It is unfortunate that metal dusts, especially aluminum, magnesium, and zirconium do not receive more editorial attention. The photographs in the book are excellent, many in color. A total of 140 references are given, most of which are to be found in the German literature.

This book is truly an excellent updated reference which should be useful to anyone concerned with production, handling, storage or shipment of dusts in any form.

HOWARD H. FAWCETT

Chemical Carcinogens. Some Guidelines for Handling and Disposal in the Laboratory, by M. Castegnaro and E.B. Sansone, Springer-Verlag, New York, NY, 1986, ISBN 0-387-16719-6. 97pp., \$ 17.00.

This little book appears to be a result of merging the National Institutes of Health (NIH-USA) guidelines for laboratory work with chemical carcinogens and similar guidelines published by the International Agency for Research on Cancer (IARC). The introduction provides lists of the chemicals or processes considered by IARC to be known, probably, or possibly carcinogenic in humans. This chapter also outlines the responsibilities of each person in a research group which handles chemical carcinogens. Further discussion covers supply, storage and transport of carcinogens, what to do in case of a spill, protection of staff, proper experimental procedures in laboratory and animal rooms, and the design and outfitting of rooms where carcinogens are used. Methods for treatment and disposal of waste from experiments with carcinogens are given, as well as an evaluation of available methods for chemical deactivation of various structural classes of carcinogens.

A list of almost 200 references is added. Unfortunately, older editions of some of the main references are included when newer editions are now available. For future editions, more effort should be expended to update the book.