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Book Reviews

Noyes Data Corporation, Park Ridge, NJ., has recently published several text relevant to chemicals and their hazards. These book include:

1. *Protective Barriers for Containment of Toxic Materials*, by Fung, R. (Ed.), 1980, 288 pages, $39.

This book provides information for the engineer on physical methods for the containment of toxic wastes in land impoundments. Proper storage and handling via the use of liners, covers or fixation techniques, offer an excellent means for controlling the escape of toxic materials and provides an aspect of compliance with RCRA standards.

Descriptive information is included on man-made and natural barrier materials, types of wastes to be contained and testing procedures employed. Solidification of wastes as a form of stabilization is also explored. The major basis of each chapter is one or more reports prepared for the US EPA.

2. *Priority Toxic Pollutants — Health Effects and Allowable Limits*, by Sittig, M. (Ed.), 1980, 370 pages, $54.

This book is a practical manual for it deals with the US EPA designated 65 catergory priority toxic pollutants (actually 129 individual chemicals resulting from EPA's consent degree with NRDC). For each one of the chemicals the following information is given: occurrence, physical and chemical properties, uses, toxic effects, current levels of exposure, special groups at risk, existing guidelines and standards, summary of proposed criteria, bases for human health criteria and pertinent references.

3. *Health Hazards and Pollution Control in Synthetic Liquid Fuel Conversion*, by Nowacki, P. (Ed.), 1980, 511 pages, $54.

Compiled from US Government Reports (EPA, ERDA and DOE), the editor reviews the environmental, health and pollution control aspects of synthetic liquid fuel conversion processes for coal, oil shale and tar sands, based on projects in pilot scale or early commercial stages.

4. *Pesticide Manufacturing and Toxic Materials Control Encyclopedia*, by Sittig, M. (Ed.), 1980, 810 pages, $96.

Sittig, using the patent literature and US Environmental Protection Agency reports, has assembled a large amount of information on 514 different pesticides. Information given for each chemical, generally includes: function; chemical name; formula; trade names; manufacturing process; process wastes

and their control; toxicity; allowable limits on exposures for air, water and solid waste disposal; product use; references.

Three short introductory chapters include sections on the definition of a pesticide, general pollution problems in manufacturing, pesticide formulation and use and the general aspects of toxic materials control and restrictions on pesticide exposure and use. The third chapter deals with environmentally acceptable alternatives to conventional pesticide use.

GARY F. BENNETT

Biodegradation Techniques for Industrial Organic Wastes, by D.J. De Renzo (Ed.), Noyes Data Corporation, Park Ridge, New Yersey, 1980, $28.

This book is based on a report of SCS Engineers prepared for the US Environmental Programme. It mainly describes treatment systems already well established for the removal of potential hazardous organics (Biocidal, Mutagenic, Carcinogenic, Bioaccumulative) from water in order to meet the requirements of Section 212 Resource Recovery Act 1970 of the E.P.A. Much of the book describes the results of operating selected plant with special reference to oxygenation and anaerobic digestion, nutrients, biological properties and their control, temperature etc.

Special attention is also paid to the treatment of thirty-five selected organics such as phenols and aromatic, heterocyclic and polycyclic hydrocarbons which occur as wastes widely in the petrochemical and process industries. Some lists include these with references to their analysis and biodegradability. A quite wide range of toxic elements is thus covered together with much practical experience of rates of degradation in the selected plant with some prediction for design and operating conditions for new plant.

A large proportion of the text is devoted to site studies which include design features related to location, and economics. These will be of great value to consultant civil engineers in the effluent treatment industry. The descriptions of the biological characteristics of the plant are rather cryptic and it must be assumed that the authors expect their readers to be well versed in microbial physiology and biochemistry. With only one exception (Flouren) all the chemicals were known to be biodegraded: little advice is given on how to test those new chemicals for biodegradability.

The brief discussion of innovation in the effluent treatment touches on important immediate development but is not very innovative in approach. In all, this book must be considered as a valuable addition to the field, especially to designers and operators and should find a place in civil and chemical engineering libraries as well as in those of water treatment and environmental organisations.

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