

with PCl_5 . But their properties are different: kepone has a water solubility of 2000 ppb, hex 800 ppb and mirex only 1 ppb. All are difficult to identify; methods do exist to quantify kepone and mirex but not hex.

Kepone was used in South America for bananas and was put into U.S. ant traps. Mirex was used extensively in the U.S. against fire ants in the South. Hex is normally used as a precursor for other products. None was produced in major quantities (at least when compared to major commodities of the chemical industry; only 1.5×10^6 kg of mirex were produced from 1959 to 1975) but all three have had a major environmental impact as indicated before (kepone and hex especially). A chart in the book reveals major areas of Lake Ontario, especially near the major cities (Niagara Falls, Rochester and Oswego) that have mirex concentrations in the sediment in excess of 10 ppb.

Although much information is contained in the book about these three chemicals, much is still unknown as evidenced by the final paragraph: "When analyzed according to the above criteria, there are simply too few data cogent, generalizations concerning the environmental impact of kepone, mirex and hex. In relative terms, there is growing, though incomplete literature, concerning kepone, there is a substantial body of knowledge of acute and chronic effects and residue distribution of mirex, and little is known with regard to the environmental significance of hex."

In summary, I think this short, readable, assessment of these three chemicals that have been so much in the news, should be read by those dealing with hazardous (toxic) chemicals. What can happen when toxic chemicals are used or misused must be always before us who produce, disseminate and apply them to the environment.

This book clearly elucidates what is known and not known about the human and environmental impact of three such toxic substances.

GARY F. BENNETT

Drinking Water Detoxification, edited by M.T. Gillies, Noyes Data Corporation, New Jersey, 1978, 348 pages, \$48.

The book summarises the new drinking water regulations proposed by the United States Environmental Protection Agency (USEPA) and the critical response by the American Water Works Association (AWWA) to these proposals. Amendments to the regulations on trihalomethanes and on organic compounds proposed by the Office of Water Supply Criteria and Standards Divisions of the USEPA are also presented. Processes for the removal of potentially harmful organic compounds from drinking water are outlined and special emphasis is given to the use of granular activated carbon by summarising the "Interim Treatment Guide for Controlling Organic Contaminants in Drinking Water using Granular Activated Carbon (GAC)" issued by the US Environmental Protection Agency. This guide contains discussions on the performance of

GAC for organics removal, the design of GAC systems, the available analytical methods and systems for reactivation of the GAC. An economic analysis of the proposed amendments on trihalomethanes and organics is given which is based on a report prepared by a consultant firm for the US Environmental Protection Agency.

The final chapter of the book looks at the removal of inorganic contaminants from drinking water.

The material of the book is based mainly on reports which have been published by the US Environmental Protection Agency and presents no fundamentally new knowledge. However, it brings together the current thinking of the US Environmental Protection Agency on potentially harmful contaminants in drinking water and is therefore a useful guide for anybody involved with the question of preparing wholesome drinking water.

Unfortunately the title of the book is rather misleading and does not represent the context of the book.

T. ZABEL

Unit Operations for Treatment of Hazardous Industrial Waste, edited by D.J. DeRenzo, Noyes Data Corporation, 1978, \$42.

This compilation of almost 1,000 pages must provide one of the most extensive reviews of waste-treatment processes yet published outside EPA covers. About forty processes from adsorption to zone refining are included.

Perhaps some should have been excluded, for instance the comment in the book concerning zone refining states "no commercial or experimental applications of zone refining to conventional hazardous wastes are known". It may have been added that such applications can hardly be conceived either. Similarly freeze crystallisation is not even used for treating innocuous industrial wastes, but it is suggested that in future it *will* become a reality if only as a source of recyclable plant water — I wonder if the costs have really been considered seriously. Conversely, other processes with current application, like radiation treatment, are not mentioned.

Each section of the book is divided into six sections, Brief (single paragraph) Conclusions and Recommendations open a section, followed by a process Description, Applications to Date (if any!), Energy Environmental Issues and Economics, Outlook for Industrial Waste, Treatment and References. An unusual feature is that people and organisations experienced in the field are included with the references. This could be useful, but will presumably soon be outdated, and could be invidious by omission.

Unfortunately there is no index, or any way of relating treatment process to the wastes appropriate to them. Since most people start with the waste and seek the matching process there is a need for painstaking searching to find