

It has to be quickly noted that I, unlike the author who was a Section Chief in the Hazardous Evaluation Division, Environmental Fate Branch of the US EPA, am not an expert on Fate and Transport. Therefore a deeply technical critique of what he has presented is not possible. However, I can state that what I did read, from my chemical engineering/pollution background perspective, appears very elementary and simplistic. For a deeply technical analysis of the topic one would have to turn the prior cited work of Lyman et al.

The book, however, does look at the physical chemical data for a variety of chemicals (type, water solubility, etc.), such as the octanol-water partition coefficient,  $K_{oc}$ , and soil adsorption, and does make statements based on these data of what should happen environmentally to those chemicals on going into water solution, absorbing on soil, vaporizing, etc. In that context, the book is a quick reference. But to determine numerically (or quantitatively) the partitioning of these environmentally important chemicals between the various media would be difficult using the techniques presented.

GARY F. BENNETT

*Halogenated Solvent Cleaners: Emission Control Technologies and Cost Analysis*, by Radian Corporation, published by Noyes Data Corp., Park Ridge, NJ, 1990, ISBN 0-8155-1248-1, 223 pp., \$ 45.00.

This book is one of many reports written by environmental consultants for the U.S. Environmental Protection Agency to assist industry in complying with new environmental regulations. This book contains information on the use and control of halogenated solvents in solvent cleaning applications. Described are types of solvent cleaners manufactured, source of solvent emissions, methods of controlling these emissions and the cost associated with the installation of control devices.

Halogenated solvents are used to clean and/or condition the surface of metal parts, electronic parts and other non-porous surfaces. The five commonly used halogenated solvents are methylene chloride, trichloroethylene, perchloroethylene, trichlorotrifluoroethane and trichloroethylene. These chemicals possess the physical characteristics necessary to handle a variety of industrial cleaning situations with good cleaning power; moreover they are relatively safe from a flammability perspective. Consequently hundreds of millions of pounds of each chemical are used per year and a significant fraction of each is emitted to the environment. Being toxic, these emissions can pose a health hazard. Consequently, emission control is warranted.

Chapter titles include:

- Organic solvent cleaner characteristics and emissions
- Emission control techniques

- Appendices
- derivation of capital costs
- derivation of annual costs
- cost effectiveness calculation table

It is obvious that cost data comprises a significant fraction of the book and those data are very useful for preliminary process design analysis. And those cost data are the book's strength.

GARY F. BENNETT

*The Merck Index: An Encyclopedia of Chemicals, Drugs and Biologicals*, by S. Budavari (Ed.), Merck and Co. Inc., Rahway, NJ, 1989, 11th edn., ISBN 911910-28-X, 2274 pp., \$ 35.00.

If there is only one book referenced in other hazardous materials books or articles, it is inevitably *The Merck Index*. This new edition is the 11th in the 100 year period since this definitive work was first published. *The Merck Index* clearly is, as the preface notes 'a handy, one volume compendium of information on the most important, chemical, drug and biological substances'.

This book contains more than 10,000 concise descriptions of chemicals, drugs and biological substances. Given for each chemical are:

- Name (generic or simple)
- Chemical Abstracts name
- Literature reference – concise reference history
- Structural depiction
- Physical data
- Derivatives
- Therapeutic category

There are two appendices:

- Chemical abstracts registry number
- Cross-index of names

I must confess that this review was my first serious reading of this most-cited reference. It should not have been and in the future, I am sure this *Index* will be a much-used part of my personal hazardous literature library.

GARY F. BENNETT

*Chemical Safety Data Sheets: Volume 3—Corrosives and Irritants*, by The Royal Society of Chemistry, Cambridge, UK, 1990, ISBN 0-85186-923-8, approx. 300 pp., £ 49.95.