

prehensive information on 16,000 chemicals: names, synonyms, physical states and properties, toxicity, fire hazard, explosion hazard and fire fighting techniques. No other single source to my knowledge has this amount of information.

As an engineer, I marvelled at the size of the new edition, and its contrast to the old one, so I prepared this table:

	<u>Fourth Edition</u>	<u>Fifth Edition</u>
Number of pages	1258	1118
Size	18 cm × 26 cm	22 cm × 28 cm
Weight	1.79 kg	2.62 kg

In summary, I will state again that the book has to be on the shelf of anyone dealing with hazardous chemicals and the 1979 edition is truly an up-dated, improved revision of the 1975 edition.

G.F. BENNETT

*The Pendulum and the Toxic Cloud: The Course of Dioxin Contamination*,  
by: Thomas Whiteside, Yale University Press, 1979, Paper: \$4.95, Cloth:  
\$15.00.

This is not a book that will please the chemical industry in general or the agri-chemical industry in particular. But very likely it ought to be read by everyone who deals with chemicals, although none of us will find it pleasant reading.

Thomas Whiteside, a staff writer for *The New Yorker* magazine, has been writing on dioxin (TCDD) and the herbicide 2,4,5-T for many years. He has accumulated an impressive body of knowledge and personal contacts in the field, much of which has appeared previously as articles in the magazine.

As I read the book, it became apparent that Whiteside was on a crusade against not dioxin and the unfortunate accident in Seveso, Italy, but against 2,4,5-T (T = Trichlorophenoxyacetic acid) in a book that parallels Rachael Carson's "Silent Spring" of almost two decades ago. Though the book is resplendent with facts and charges about the devastating impact of this chemical, Whiteside rarely footnotes or references his material in order to allow a reader to verify the "facts" in the literature; indeed the sole reference citation in the body of the book is to his own articles in *The New Yorker*. However, to lend some credibility to his scientific objectivity, he has included parts of four (supporting, of course) articles.

I had expected the book to deal mainly with dioxin and the Italian accident at Seveso that produced it, but found a significant fraction of the book concerned with the Vietnam war, and use of 2,4,5-T in defoliation operations. Neither Dow Chemical, Hoffman—La Roche, the U.S. Environmental

Protection Agency nor the Italian government fare well in the book. For example:

(1) "The Mayor's view wasn't so different from the position taken by Dow Chemical Company in the United States: That although dioxin might be one of the most toxic substances known to man, if you spread enough around — for example in 2,4,5-T spray operations every year over million of acres, any hazards to human beings in the total area covered may be reckoned as being shared by everyone there without discrimination, in a sort of democracy of risk."

(2) "Why should a Swiss Corporation producing hexachlorophene, if that corporation decided to engage in the tricky business of making the trichlorophenol within the company's own facilities, buy a factory in northern Italy and make the material there rather than near its own Swiss plant? and indeed, it appears extremely doubtful whether Swiss government regulations would have permitted the manufacture of trichlorophenol under the conditions that prevailed at the ICMESA plant."

(3) "As this is written, these claims are under investigation by EPA, which by April, 1978, after years of delay and inactivity was at last prevailed upon to consider the case against permitting the continued use of 2,4,5-T in this country. Meanwhile, the manufacture and use of the herbicide continued."

The book runs to 186 pages with 14 pages of references, mainly on the toxicology of and the medical literature pertaining to the chemicals in question. However, as stated before, in the main, these articles are not referenced in the body of the book. There is an index also.

The author has presented an impressive variety of data on the medical dangers and problems of 2,4,5-T. Enough to be sure to scare the more complacent chemical engineer: abortion, birth defects, chloroacne, etc., and that is why I feel the book ought to be read by those in the chemical industry. We must be aware of the potential dangers of the chemicals we produce and that awareness is normally raised from without not within the industry. Unsubstantiated or not for 2,4,5-T, it is a fact that many chemicals are so toxic that trace amounts are deadly; and it must be admitted that the public is concerned (scared to be more explicit) and so are politicians as evidenced by passage of the U.S. Toxic Substances Law and similar laws in several other countries.

Clearly being unable to evaluate medical data, I turned to areas where I have some competence to look for accuracy in reporting. That the author is not attuned to the technical aspects of chemical engineering is revealed by his remarks that the Swiss reactor did not vent into a sealed container instead of into the air. My reaction is that it would hardly be a safety vent in the former case. Nor do drums "rust and rot away" as stated by the author; iron rusts, organic material rots.

The technical details of the process and the runaway reactor are lacking also, but Whiteside does devote a major fraction of the book (just over 100 pages) to the accident at Seveso. The impact on the residents and fruitless

attempts to clean up (the Italian government is looked upon as even worse in this reviewer's estimate than the US EPA) is discussed in detail.

Although no incidents in the US have had such a devastating impact on the local population, the problems caused by discharge of kepone, PCB and PBB have been similar and for this reason, books of this type, even though not likeable, are useful. I find great fault however with biased, unobjective writing. However, there is something to be gained from reading this book (at least, as I said, an awareness of how others see us) — written by an outsider to the chemical industry.

GARY F. BENNETT

*Incineration of Industrial Hazardous Wastes and Sludges*, by Marshall Sittig, Noyes Data Corporation, Park Ridge, New Jersey, 1979, \$48, 348 pages.

In response to the need for information on disposal processes created by the U.S. Resource Conservation and Recovery Act (RCRA), Noyes Data Corporation has published two books on hazardous waste disposal, this one and its companion volume on land disposal (following review). The new regulations to be promulgated by U.S. EPA should come out in early 1980 and in the words of Sittig "will have a profound effect on industrial waste disposal practices, especially those of hazardous wastes".

With landfill sites becoming difficult to find and rigid regulations being established to control their use and care (even after closing), incineration is becoming increasingly attractive for those wastes that cannot be buried. Thus, this book is designed to help industry in selecting and operating incineration systems in conformance with RCRA regulations.

The volume is essentially a compilation and repetition of data found in other sources. The main source of material, like many of the Noyes books, is the U.S. patent literature; abstracts for 97 patents are scattered throughout the book (in appropriate chapters). The glue that binds the patents together is taken from only 24 other references that include: 8 U.S. Environmental Protection Agency Reports, 6 other Noyes Data Corporation Books, 5 articles from *Chemical Engineering* and 5 miscellaneous sources.

The book is divided into 26 chapters, the title and subtitle of which are listed in the well-developed table of contents. Noyes routinely uses an extended Table of Contents to replace an index, although this book does contain a company, inventor (by name) and patent (by number) index.

Some of the chapter headings include: types of wastes which can be incinerated, waste disposal alternatives, regulatory requirements, incinerator design, testing and operation, types of incinerators including: catalytic, direct-flame, electric, flare, fluidized bed, liquid waste, molten salt, multiple chamber, multiple hearth, pebble bed and rotary kiln.

The book ends with chapters on seagoing incinerators and wet air oxidation, both relatively innovative techniques that appear to have a promising future.

G.F. BENNETT