

Book Reviews

Dangerous Properties of Industrial Materials (5th edn.), by N.I. Sax (Ed.), Van Nostrand Reinhold Co., New York, N.Y., 1979, 1118 pages, \$54.50.

If one were to survey chemists and chemical engineers to determine which book they consider the most important as a source of information on chemical hazards, Sax's handbook would rate very near the top. It is almost indispensable, and has been since it first appeared in 1951 as the *Handbook of Dangerous Materials*. The 1979 edition (the fifth) is, to quote the dust jacket, a "new, completely revised, expanded and up-dated" version.

I was skeptical of this claim because of the short time (four years) since the last edition came out, and the lack of change in the basic information, i.e. toxicity, TVL data, etc. So, I reviewed the new edition, side-by-side with the old. When I was done, I had changed my mind completely, agreeing that this is a completely revised handbook.

The authors have indeed done a thorough rewrite, making changes as significant as the replacement of Chapter 10 on Food Additives by a new two-part chapter: 10A deals with Chemical Substances Legislation and 10B treats Industrial Response to Chronic Health Hazards. Other changes made were small (but significant) such as adding the word "Health" to the title of the chapter on (Health) Hazards of Solid Waste Treatment (written by Wilson of MIT).

As revealed by the foregoing comments, the revisions were mainly in those sections that dealt with the laws and regulations of the U.S. Government and the changes that have occurred since the last edition went to press. Indeed, U.S. Federal Agencies have been busy — OSHA, EPA, DOT, etc. This book reports very well the current state of the regulatory "art" and, as I stated, the addition of the new material in Chapter 10 is excellent. In it, the authors (Bracken of the Office of Toxic Substances of EPA and Thompson of the Engineering and Science Directorate of the Consumer Product Safety Commission) deal with the various U.S. laws pertaining to chemicals. All pertinent acts are briefly summarized and then, in a most useful five page table, they correlate or report on the liaison efforts of EPA, CPSC, FDA and OSHA, showing each is dealing with several of the hazardous chemicals (i.e. acrylonitrile, arsenic, benzene, PCB, vinyl chloride, etc.). The second (shorter) part of the chapter titled "An Industrial Response to Chronic Health Hazards" was written by Schmutz who is Assistant General Counsel of E.I. Dupont.

Two chapters deal with air pollution control (Chapter 2 by Feiner, a consultant, and Chapter 4 by Mahoney and Goldsmith of Environmental Research and Technology.) Chapter 2, actually entitled "Industrial Air Contaminant Control" treats the internal atmosphere environment (as well as the external) including topics such as: ventilation, respirators, energy con-

servation and exhaust system design (new emphasis), and control of specific processes, such as degreasers, ovens, laboratory heads, carcinogens, workplace control; these topics are all well covered and suitable to the book. I think, however, it would have been better to end the chapter with "internal" pollution control and not tried to treat air cleaning devices (for external air discharges) also. It is not that the writer does a bad job; it is just that 23 pages are too few to treat the topic; other books do this much better and I feel, perhaps, that the external environment should be treated elsewhere. An example of problems faced by the writer in extending his topic to air pollution control, is his use of a 1968 table to illustrate cost of air pollution equipment; although he notes that an inflation correction factor should be applied, I think he should have used a more recent reference or omitted the table altogether. Sax has selected Mahoney and Goldsmith who, like the other contributors, are well recognized experts in the field, and their chapter entitled "Air Pollution Control Regulations for Industrial, Commercial and Public Facilities" is as every bit as good as some of their papers I have read. However, having said that, I will now state that I think this chapter is out of place in the book as it deals with only a part of the Clean Air Act: Prevention of Significant Deterioration (PSD) and Non-Attainment Areas. The relation of these aspects of the law to dangerous materials is not obvious.

Other chapters include: (1) An Historical Perspective (Herrick); (3) Industrial Noise: Effects and Controls (Bruce of Bolt Berneak and Newman Inc.); (5A) Radiation Hazards (Harley of the DOE) (5B); Large Radiation Source, Applications and Safeguards (Fitzgerald and Fitzgerald of Cambridge Nuclear Corp.); (7) Industrial Fire Protection (Sax himself — who, ironically, seems to have changed his chapter least of all, with the exception of adding some references to NFPA codes); (8) Industrial and Environmental Cancer Risks (Weisburger of the National Cancer Institute — the word environmental was added to the title in the new addition and indeed most of the new material deals with cancer in the workplace).

The final chapter (11) is on "Labeling and Identification of Hazardous Materials", written by Lewis of NIOSH. He reviews the regulations of Federal Regulatory Agencies (DOT, DOE, EPA, OSHA) including the new requirements of DOT for shipping papers (he includes an example of a manifest) to note prominently whether hazardous materials are being conveyed. Again, what is written is done well, but I think the chapter could be expanded from its present 17 pages to many more. I would have included a longer description of the DOT placards (which embellish the inside covers of the book, although the colors are much less vivid than the previous edition) and sources of chemical information (MCA's CHEMTREC and EPA's OHM TADS and the Coast Guard's CHRIS Manual). I would also have expanded on NFPA's Hazardous Material Guide, giving some examples from this book that contains so much information on chemical hazards.

The first 325 pages of the handbook (a good book in itself) are devoted to the previously described chapters; the last (almost 800) pages contain com-

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