

## Three Books — One Message — More Control Needed

- Book 1: *The Two Faces of Chemistry*, by Luciano Caglioti, MIT Press, Cambridge, MA and London, U.K., 1983, 218 pages, \$17.50.
- Book 2: *Hazardous Waste in America*, by S.S. Epstein, L.O. Brown and C. Pope, Sierra Club Paperback, San Francisco, CA (distributed by Random House, Inc., New York), 1983, 608 pages, \$12.95.
- Book 3: *Prudent Practices for Disposal of Chemicals from Laboratories*, National Research Council, National Academy Press, Washington, DC, 1983, 282 pages, \$16.50.

These three books, from widely different authors, have a common concern, namely that we have not extended the same degree of risk/benefit or cost effectiveness to our use and disposal of chemicals that we insist on in other important decisions in our social and industrial philosophy.

Book (1) is a broad-brush review of major chemically related problems with very specific examples of inadequate control, written by a Professor of Organic Chemistry at the University of Rome. Professor Caglioti is concerned that the implications of the "chemical revolution" that dates back to about 1910 are poorly understood in major areas such as nutrition, health, hygiene and cosmetics, new petrochemical products, inorganics, energy, and in the international (as well as national) attempts to curb admitted risks. Each chapter is accompanied with extensive references; there also is a seventeen-page bibliography. Especially informative are the discussions concerning the Seveso, Italy incident (pages 29–30), the problems of the contraceptive "pill" (pages 55–63), and the "saccharin mess" (pages 36–40). After reading this volume one can hardly conclude that "all is well with the world," and that all our collected knowledge always translates into "pro bono publico." It is a sobering book.

Book (2) is an updated paperback edition of a volume by the same name and authors published in 1982. Beginning with a quote from Congressman Gore that "hazardous waste may be the single most significant health issue of the decade," the volume cites numerous instances of improper hazardous waste/human interfaces, including exposures to PCBs, to dioxin at Times Beach, as well as the political ramifications of the Anne Gorsuch Burford term at US EPA. Alternate methods of disposal other than "landfill" are explored (pages 317–339). The appendix list is impressive: sources and composition of nonradioactive wastes, industrial hazardous waste generation, comparability of state programs, toxicological effects of Love Canal chemicals (which graphically illustrates how poorly we understand chemicals in this context), Sierra Club's "Hunt the Dump," location of sites subject to legal action by US EPA, and the EPA's listings of potential hazardous waste sites by state and city based on the January 1, 1981 listing. (The National Priorities List of the *Federal Register*, September 8, 1983, pages 40667–40682 is not included). This paperback will doubtlessly provoke more public discussion.

Book (3) is designed to reassure US EPA that chemical laboratories are "under control" insofar as chemical handling and disposal is concerned (which are estimated to be only 1% or less of the overall hazardous waste problem). The book reviews the management of a proposed system which laboratory management and supervision should institute to bring wastes under control, and recommends simpler, more uniform regulations for disposal of hazardous lab wastes. The book asks that laboratories be relieved from large reporting and recording requirements. Alternate disposal methods, including incineration and chemical de-activation, are noted. We are not sure how seriously these methods will be taken, or that they will be conducted in a proper manner by all chemists, but it should be required reading.

H.H. FAWCETT

*Handbook of Plastics Flammability and Combustion Toxicology*, by A.H. Landrock, Noyes Data Corporation, Park Ridge, NJ, 1983, 308 pages, \$36.

This intriguing interdisciplinary book arrived at my office the same week in which 23 people died from exposure to combustion products in an Air Canada plane fire. To say the book is timely is a gross understatement.

In the objectives of the book, the author outlines what the reader should gain:

- Awareness of legal action of regulatory agencies.
- Knowledge of test methods used to evaluate the flammability of plastics and their combustion products (Chapter 7).
- Knowledge of how plastics burn and what stages they go through when they burn (Chapter 3).
- An understanding of how fire retardants work (Chapter 4).
- Knowledge of toxic products of burning plastics (Chapters 5 and 6).
- Information sources (Chapter 9).
- Knowledge of current research and development.

The three key chapters are the middle ones (5, 6 and 7). In chapter 5, the author considers the general fire safety aspects of currently available plastics including molded and cast solids, foams, films and sheets and composites/laminates.

The chapter of most interest to me was the sixth, in which Landrock discusses the effect of toxic gas emission and smoke. He notes that more than 80% of all fire fatalities are caused by the inhalation of toxic gases (which was certainly the case with the recent airplane fire) due to CO, HCN, SO<sub>2</sub> and/or phosgenes, as well as other toxic emissions of burning or hot synthetic materials. Chapter 7 is a lengthy chapter giving considerable details on the test methods commonly used in combustion studies involving plastics, including all ASTM, UL, DOT and FAA tests.

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