

The Economics of Pollution Control in the Non-Ferrous Metals Industry,
by M.H. Atkins and J.F. Lowe, Pergamon, Oxford, 1979, 177 pages,
£21.00 (\$48.00).

The goal of the research which resulted in this book was to investigate the economics of pollution control costs and expenditures in the non-ferrous metal industry. The work was done in the United Kingdom with funding supplied by the Department of the Environment, which is the British counterpart to the U.S. Environmental Protection Agency.

Written by two business professors, the book focuses heavily on the costs of pollution control, especially from the industrial viewpoint. After an introductory chapter on economic analysis, separate chapters are devoted to the primary aluminum, secondary aluminum, lead, copper and brass, zinc and metal-founding industries.

Since my personal experience with the metal industry has been limited to the lead area, I examined that chapter in greatest detail and found that the authors have done an excellent job of presenting data on production (U.K. figures), major manufacturers, international prices and consumption. I also found, much to my surprise, valuable (and previously unseen by me, at least) atmospheric lead concentration data of the air, dust and soil.

Control methods are briefly, but inadequately (from an engineer's viewpoint), discussed. Other than relating pollution control costs to the size of the plant, there was no attempt to correlate effluent quality (or conversely per cent removal of contaminants) to cost. Also the discussion was limited almost to air pollution, with extensive U.S. EPA documents on water pollution and its control not cited.

In spite of limited documentation, the authors were able to construct a table of costs of control in £ per tonne of lead removed, the cost varying from £0.75 to £16.83. The authors also found that in the industry pollution-control costs never exceeded 20% of production costs, but capital costs for installation of new equipment could be quite high.

As a final note, I calculated the book's cost to be 27¢ per page; that's quite high.

GARY F. BENNETT

Polycyclic Hydrocarbons and Cancer, Vol. 3, by H.V. Gelboin and P.O.P. Ts'o (Eds.), Academic Press, New York, 1982, 351 pages, \$49.50 (£32.80).

In the United States, the environmental movement appears to focus on, and hammer away repeatedly at, a major concern. When a single topic receives a great deal of attention, it attracts the interest of the U.S. Congress and laws are passed on the subject. The problems of Lake Erie, air pollution,

PCBs and fluorocarbons have been the subject of such intense interest and subsequent governmental regulations.

The 1980s, it appears, will be the decade of the toxic compounds (equated to cancer by most non-scientists). Although the bases for the control of such chemicals are already embodied in the major U.S. environmental laws, many environmentalists feel that control of potentially cancerous chemicals has not been effected to the degree they desire.

Prior to control (laws), fate and effects must be known. This three-volume work is directed towards that goal. It constitutes a comprehensive summary of the present state of the art of knowledge, of which this, the third volume, deals with polycyclic aromatic hydrocarbon research, particularly in relation to cancer. It provides a useful research source for those regulators needing (and desiring) a scientific basis for regulations.

In the three volumes there are extensive reviews and reports by workers from the basic biological and chemical fields describing the research into polycyclic aromatic hydrocarbons.

This particular volume contains eight chapters, most of which deal with biochemical effects or the metabolism of aromatic hydrocarbons.

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Chemical Plant and its Operation (including safety and health aspects), by T.M. Cook and D.J. Cullen, Pergamon, Oxford, 2nd edn., 1980, 173 pages, \$9.00 (£4.50) flexicover or \$20.00 (£10.00) hard cover.

Written as a textbook for chemicals operators, process workers, plant technicians and maintenance staff, this manual contains a practical description of equipment and processes currently being used in chemical and allied products industries. The written material is supplemented by excellent diagrams which illustrate basic principles of the equipment and its operation.

The last two chapters are of special interest to readers of this journal. They are: (1) safety in chemical plant operation, (2) preliminary rules for first aid. The former discusses why accidents occur, basic safety rules, hazard detection, personnel-protection equipment (including cannister-type breathing masks, but not self-contained breathing apparatus) and pressure and vacuum systems. The material presented is good but only preliminary, i.e. for the cannister mask, no data are given on limits of usage or the maximum gas concentration one is allowed to be exposed to — so the book may be a good beginning for training if supplemented with detailed material by those trained in Industrial Hygiene, etc.

It's always easy for a reviewer to find something missing, and I do that in this case, not as a criticism but as a suggestion for future volumes, and that is to include fire-fighting information as a supplement to the safety chapter.