Pergamon

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BOOK REVIEWS

Encyclopedia of Chemical Technology: 4th Edition Volume 9: *Elastomers, Polystyrene to Expert Systems*: J. I. KROSCHWITZ and M. HOWE-GRANT (editors), Wiley, New York. 1994. Pages xxviii + 1112. £185.00. ISBN 0-471-52677-0.

A total of 74 authors, based in either the U.S. or Denmark, have contributed to this latest volume in the 4th edition of the encyclopedia. The contents page lists 43 separate entries ranging from Elastomers (continued from Volume 8) to Expert Systems.

The topic dealt with in most detail here is Enzymes and there are three separate entries for this subject: Enzyme Applications (industrial and therapeutic), Enzyme Inhibitors and Enzymes in Organic Synthesis. Apart from reference to general texts on enzymes over 600 references are quoted in this interesting and informative section.

Topics where chemistry and electricity overlap are also well covered. For example there are sections on Electrical Connectors, Electrically Conductive Polymers, Electroanalytical Techniques, Electrochemical Processing, Electroless Plating, Electrophotography, Electroplating and Electroseparations. The somewhat brief entry on Electroanalytical Techniques (22 pages) covers active techniques, passive techniques and static and dynamic measurements. Electronic Materials and Electronics, Coatings are also presented.

Specific chemicals or chemical classifications encompass Epinephrine (adrenaline) and Norepinephrine, Epoxy Resins, Esterification (e.g., batch processes for methyl, ethyl and *n*-butyl acetate), Esters, Ethanol, Ethers, Ethylene and Ethylene Oxide. The batch process Evaporation is also covered.

There is a one page entry on Environmental Impact which details the coverage of environmental issues in the many volumes of the Encyclopedia. It is evident that many articles include such issues and examples in volume 9 are Exhaust Control, Automotive and Exhaust Control, Industrial.

Other topics that complete this volume are Embedding, Emulsions, Enamels (Porcelain or Vitreous), Energy Management, Engineering (Chemical Data Correlation), Engineering Plastics and Expectorants (together with Antitussives and Related Agents).

The expected high standard of these volumes is maintained with this latest offering and the contributors and editors are to be congratulated on their continuing efforts to produce a major work for chemical practitioners.

P. J. Cox

Handbook on Metals in Clinical and Analytical Chemistry: H. G. SEILER, A. SIGEL and H. SIGEL (editors), Dekker, New York, 1993. Pages: xx + 753. $195.00. ISBN 0-8247-9094-4.

A total of 80 authors from all over the world have contributed to this multi-authored text and although individual styles are apparent the editors have very successfully combined all the contributions into the 58 chapters of the book. The overall aim is to summarize current knowledge on the role of metal ions in clinical chemistry—the exposure of humans to metals, metabolism, and the various analytical methods used to determine metals in biological matrices. The chemical symbols of the 61 metals and metalloids covered are shown occupying the periodic table on the cover of the book.

The handbook can be considered in two parts with part one consisting of an introduction, a general survey of the role of metals in clinical chemistry, various analytical methods, sampling and quality control and assurance. Here there are short chapters on spectrophotometry, AAS, ISE, voltammetry, ion chromatography, GS-MS, ICP-AES and ICP-MS, and neutron activation analysis and γ-ray spectrometry. These chapters are general surveys of available methods, for example, the chapter on AAS (22 pages) consists of introduction, flame AAS, electrothermal AAS, chemical vapour generation AAS, preconcentration and separation. The chapter on ISE (7 pages) is rather short. Part one also contains a chapter on the determination of metals in human hair.

Part two of the handbook contains 43 chapters on individual metals. The six platinum-group metals are treated together in one chapter and the lanthanides, with the exception of gadolinium which is dealt with separately, are also covered together. In general, the organisation of the chapters on the individual metals is: Chemistry, Distribution and technical uses, Physiology, Analytical determination, Abbreviations (where appropriate) and References. There is a vast amount of information presented which makes this book a major reference work. On the whole the analytical determinations—with the emphasis on AAS—are mentioned succinctly but numerous references (over 3500 throughout the book) to the primary literature are given. A flaw in reading the text was an unfinished sentence in the chapter on beryllium (page 259).

Some interesting points from the book related to clinical chemistry include: the use of Ba salts as contrast agents in radiology due to their high densities, some non-toxic forms of arsenic (including its elementary form), organotin complexes as antitumor agents, ^{99m}Tc as the most widely used isotope in diagnostic nuclear medicine, the uses of Pt complexes in cancer therapy, and the use of Li in the treatment of affective disorders (e.g., manic depression).