Book Reviews

Phosphorus, An Outline of its Chemistry, Biochemistry and Technology

By D. E. C. Corbridge, Studies in Inorganic Chemistry 10, published by Elsevier, Amsterdam, 4th edition, 1990, 1093 pp., US $333.25.

The fourth edition of *Phosphorus, An Outline of its Chemistry, Biochemistry and Technology* is a completely revised and updated version of the well known textbook; various sections have been added particularly in the area of biologically relevant compounds. The book now has 14 chapters with several appendices and a total of 1093 pages.

Chapter 1 gives a general introduction to phosphorus chemistry including a collection of interesting data of phosphorus element bond lengths and force constants. The second chapter contains a most instructive section about the structural chemistry of phosphides; however, a brief description also of recent developments and modern bonding concepts, e.g. of Zintl phases, would be a valuable supplement. Chapter 3 gives a comprehensive presentation of all aspects of organic and inorganic phosphates and their coordination compounds with transition and main group metals; biologically relevant systems and technological applications are discussed as well. The fourth chapter presents organic phosphorus chemistry of all oxidation states and coordination geometries of phosphorus and gives a well selected, timely overview of the voluminous literature in this area. The following chapters are devoted to phosphorus nitrogen compounds (polyphosphazenes, monomolecular and pentacoordinated compounds) (5); to agro- and medichemicals (6); and to phosphorus chemistry with group 16 (7), group 13 and group 14 (9) elements. A further chapter (8) deals with carbon phosphorus compounds containing more than one phosphorus atom. Since all subjects have been revised rigorously, reading of the chapters is informative and interesting. The large area of coordination compounds of phosphorus is summarized in one chapter (10). As in most textbooks, the subject has been organized with respect to the ligands and their chemistry; some brief comments on reaction mechanisms and catalytic properties are also given.

A large section of the book (Chs. 11–13) accounts for the growing interest in bioinorganic issues. Three chapters are devoted to the role of phosphorus in biochemistry. The discussed topics include biopolymers (11); nutrition, food technology (12); and metabolic processes, as well as DNA structure and replication (13). The introduction of themes of biological interest gives new impulses and certainly will increase will increase the attractiveness of the book.

The last chapter (14) presents some topics of special interest like hydrogen bonding, stereochemistry and isomerism in phosphorus compounds and a section about short lived species.

The appendices give a literature selection, some comments to nomenclature and tables of physical properties (with hazards) of selected phosphorus compounds. The index provides references to important keywords.

This wide overview of important aspects of phosphorus chemistry distinguishes the book as a most valuable source of information for both advanced students and research chemists. It is not the intention of the author to give a full and comprehensive summary of the current status of research in all areas, but the important developments are accounted for by a selection of representative and leading references. The organization of the text is exemplary and its clear and precise style of presentation is convincing. The 'camera ready' format of the book allows a price of US $333.25. *Phosphorus* by D. E. C. Corbridge should be present in every library as a valuable reference book and on the bookshelf of any chemist who is interested in a broader presentation of phosphorus chemistry.

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Progress in Inorganic Chemistry, Volume 37

Edited by S. J. Lippard, published by Wiley, New York, 600 pp., ISBN 0-471-62297-4.

The new volume of this prestigious series contains seven contributions.

There is a review (98 pages, 350 refs.) by B. Lippert on 'Platinum Nucleobase Chemistry'. The interactions of platinum with the potential and actual donor atoms of the nucleobase is discussed together with the spectroscopic tools. The scientific authority