

Book reviews

Gmelin Handbook of Inorganic Chemistry, 8th edition, *New Supplement Series, Vol. 25, Perfluorohalo-organic Compounds of the Main Group Elements, Part 4, Compounds of the Elements of the First through Fourth Main Groups, Excluding Carbon*, A. Haas and H. Marsmann, volume authors, D. Koschel, volume editor, Gmelin Institut für Anorganische Chemie und Grenzgebiete der Max-Planck-Gesellschaft zur Förderung der Wissenschaften, Springer-Verlag, Berlin/Heidelberg/New York, 1975, 213 pages, DM 471, \$ 193.20.

This Gmelin volume is the fourth part of the miniseries on perfluorohalo-organic derivatives of the main group elements. The previous three volumes which covered such compounds of the Group VI and Group V elements (not including nitrogen, whose compounds will be the subject of a future volume) have been reviewed in this Journal [1].

The present book deals with perfluorohalo-organic compounds (alkyl, alkenyl, alkynyl, aryl) of the elements of Main Groups I through IV (excluding carbon). The limitations of coverage are the same as in the previous volumes. The compounds which are included are those whose organic groups contain only fluorine and other halogen substituents. Those with any organic substituent which contains hydrogen are excluded by the rules which are followed. Thus we find $(\text{CF}_3)_4\text{Sn}$ discussed, but $(\text{CH}_3)_3\text{SnCF}_3$, which is easier to prepare and has demonstrated synthetic utility as a CF_2 source, is not, simply because of its CH_3 substituents. Pentafluorophenyl compounds of the elements in question are listed, but tetrafluorophenyl derivatives are not because their lone hydrogen substituent offends the rules. Within these curious and arbitrary restrictions the authors have done a fine job, and, again within these restrictions, this is a useful book to all who are active in research on fluorinated organometallics. Particularly valuable to synthetic chemists, both inorganic and organic, will be the chapters devoted to the synthesis and the organic and organometallic applications of perfluorohalo-alkyl-, vinyl- and aryl-lithium and Grignard reagents with their extensive tables of compounds and reactions.

For all compounds listed this book provides information concerning preparation, physical and spectroscopic properties (IR and Raman; NMR, in particular ^{19}F) and chemical reactions. Literature coverage is complete through 1973 but many later references can be found. A bibliography of the review literature of this field at the beginning of the book will be useful to the reader. A formula index covering all compounds listed in this book as well as those found in Part 3 of this series (P, As, Sb, Bi) concludes the book.

As is the case with most Gmelin volumes, this book is written in German. English translations of the Foreword to this volume as well as those to Parts 1

and 3 of this series, of the table of contents and of chapter and section headings are provided.

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*Handbook of Spectroscopy. Vol. II, J.W. Robinson (Ed.), CRC Press,
Cleveland, Ohio, 1974, 578 pages. US \$39.95.*

This is a welcome addition to the excellent and modestly priced series of CRC handbooks. It deals with IR, Raman, UV, ESR, NMR, and mass spectra. Brief but useful guidance on experimental practices is given in each case, followed by illustrations of typical spectra and systematic listings of data for a wide range of representative compounds.

Even where more complete compilations of spectroscopic data are available in the library this volume will be a most helpful source of information to keep at hand in the laboratory.

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*Chemical Analysis of Organometallic Compounds, Vol. 4. Elements of
Group V, by T.R. Crompton, Academic Press, London/New York, San
Francisco, 1975, x + 302 pages, £9.40, U.S. \$23.25.*

This volume of this very useful work deals with the organic compounds of Group VB, i.e. of P, As, Sb and Bi. (The author could find no references to analysis of organic compounds of Group Va, i.e. V, Nb, Ta and Pd.) As with the earlier volumes, chromatographic methods are described as well as procedures for elemental analysis. Because of the great interest in possible environmental contamination by phosphorus pesticides this may well prove to be the most used volume in the series.

The whole set of four volumes is virtually essential in laboratories concerned with analysis of organometallic compounds.

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