Book Reviews

Gmelin Handbook of Inorganic Chemistry, 8th Edition, Sn. Organotin Compounds. Part 8. Organotin Iodides. Organotin Pseudohalides. H. Schumann and I. Schumann, volume authors. H. Bitterer, volume editor. Gmelin Institut für Anorganische Chemie der Max-Planck-Gesellschaft zur Förderung der Wissenschaften and Springer-Verlag, Berlin/Heidelberg/New York. 1981. v + 226 pages. DM 677, $307.70.

We have here the eighth volume of the Schumanns' organotin series of the Gmelin Handbook. In this book the coverage of organotin halides, begun in Part 5, is completed with detailed treatment of organotin iodides and extended to organotin pseudohalides. The latter include cyanides and isocyanides, isocyanates, fulminates, thiocyanates and isothiocyanates, isoselenocyanates, azides, and sulfinyl amides. All types of compounds are treated, e.g., for the iodides, compounds of type R_3SnI, $R_2R'SnI$, $RR'R''SnI$, R_2SnI_2, $RR'SnI_2$, $RSnI_3$, R_2SnXI, $RSnX_2I$, and $RSnXI_2$.

The details provided for the first compound in the book, trimethyltin iodide, are illustrative of the individual compound coverage: preparation (regardless whether or not the procedure is of practical utility); structure; dipole moment; NMR spectra; Mössbauer spectra; IR, Raman, and UV spectra; mass spectrum; physical properties (melting point, boiling point density, n^tD, molar refraction ΔH_{vap}, specific conductance, molar susceptibility); polarography; chemical reactions. For compounds which have received much study these data are collected in the textual material; for less intensively studied organotin iodides and pseudohalides they are presented in tabular form.

The literature has been covered through the end of 1979, and the cited references are collected at the end of each section, rather than at the end of the book. This leads to considerable duplication of references, but at the same time it greatly facilitates the user's search for the cited reference in which he is interested. All pertinent information from all the journals, serials, books, patents, conference reports, etc. which are abstracted in "Chemical Abstracts" has found its way into this volume, so the coverage is detailed and well-nigh complete.

The collection of "general literature" (with increasing specificity, on organometallic compounds, on organometallic compounds of the main group 4 elements, on organotin compounds, and finally on organotin iodides and pseudohalides) is a valuable feature of this volume and continues and up-dates similar listings of reviews, monographs, etc. in earlier volumes of this series.

A combined formula and substituent group index for the compounds treated in this book will be useful to the reader. The book is written in English. It is a welcome addition to the Gmelin organotin series.

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Gmelin Handbook of Inorganic Chemistry, 8th Edition, Selenium. Supplemental Volume A3. V. Haase, G. Kirschstein, and H. Reiger. G. Czack, G. Kirschstein, and H. K. Kugler, Editors. H. K. Kugler, editor in chief. Gmelin Institut für Anorganische Chemie der Max-Planck-Gesellschaft zur Förderung der Wissenschaften and Springer Verlag, Berlin/Heidelberg/New York. 1981. xii + 335 pages.

The "selenium" (Gmelin System-Number 10) supplemental volume A3 completes the series of supplemental volumes Part A on elemental selenium. The literature closing date was the end of the year 1979. In many cases more recent data have been considered. Previously published volumes on selenium were devoted to history, occurrence, and properties of the element (volume A1, 1942), electrical properties of the element I (volume A2, 1950), electric properties of the element II (volume A3, 1953), compounds of selenium (volume B, 1949), technology, formation and preparation of the element, preparation, enrichment, and separation of selenium isotopes (supplemental volume A1, 1979), and selenium atoms and molecules, crystallographic properties (supplemental volume A2, 1980).

Supplemental volume A3 consists of six chapters summarizing mechanical and thermal properties, magnetic and electrical properties, optical properties, the electrochemical behavior, and the chemical behavior of elemental selenium and describing the homoatomic ions Se_n^{2-} (n = 1–6), Se^-, Se_n^+, Se_n^{2+} (n = 2, 4, 8, 10, 12, 16, m), and Se_4^{4+}, which are known to exist in solution.

This volume contains a wealth of up-to-date information in compact form making it an invaluable, time-saving aid to anyone working with selenium. Of special interest to chemists are the chapters on the electrochemistry of selenium (~100 pages), on the reactions of selenium with other elements, with compounds, with water and aqueous solutions, and with organic solvents (~100 pages), and on homoatomic selenium ions (9 pages). A table at the end of the volume gives often used conversion factors for force, pressure, energy, and power. The inside front- and back-covers provide information about the system numbers associated with the elements and explain the principle guiding the assignment of compounds to the system numbers.

This volume—as all the others which have been issued during the past few years—is printed on high-quality paper in an easily readable type. The volume is written in German but contains an English preface, table of contents, and review for the chapter on the chemical behavior and English headings in the margin of the text. The high-quality figures and the well-organized tables add to the value of this book. Cross-references to other Gmelin volumes on selenium are a much appreciated feature. No chemistry department and scientific library should be without this and the other volumes of Gmelin Handbook of Inorganc Chemistry.

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Gmelin Handbook of Inorganic Chemistry, 8th Edition, Fluorine–Perfluorohalogenorgano Compounds of the Main Group Elements. Part 9. Aliphatic and Aromatic Nitrogen Compounds (Conclusion). A. Haas, volume author, D. Koschel, volume editor. Gmelin Institute for Inorganic Chemistry of the Max Planck Society for the Advancement of Science and Springer-Verlag, Berlin/Heidelberg/New York. 1981. iii + 223 pages. DM 603. $256.60.

This final volume on the perfluorohaloorgano derivatives of the main-group elements (excluding those of oxygen, the halogens and carbon) also completes the series of volumes, parts 5–9, dealing with perfluorohaloorgano derivatives of nitrogen. Parts 7–9 cover aliphatic and aromatic perfluorohaloorganic compounds of nitrogen, and the present volume contains an empirical formula index for all three parts in addition to finishing treatment of this subtopic. Literature coverage is complete through 1975.

The very serviceable format of preceding volumes is continued with the added benefit for many of being written entirely in English. In fact, future Gmelin volumes will also be published exclusively in English. The subject matter surveyed is perfluorohaloorganonitrogen compounds containing nitrogen–sulfur bonds, those containing nitrogen bonded to P, Se, As, B, Si, Ge, Sn, K, Li, Cs, and Hg, and those having nitrogen incorporated into a pseudohalide group (including cyanide), azalkenes, and tertiary amines. Insofar as this reviewer can determine, literature coverage is comprehensive and errors are infrequent. Furthermore, the usual orderly presentation and clear typescript make the information readily accessible. This volume deserves a place on the library shelf along with its predecessors as part of a valuable reference tool.

A supplemental volume on perfluorohalogenoorgano compounds of the main-group elements is promised to update the literature coverage to a uniform level over the entire field.

Carl G. Krespan, *E. I. du Pont de Nemours & Co., Inc.*