

Book review

Gmelin Handbook of Inorganic Chemistry, 8th edition, *Sb. Organoantimony Compounds, Part 1, Compounds of Trivalent Antimony with three Sb—C Bonds*, M. Wieber, volume author, 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, ii + 217 pages, DM 631, \$372.30.

Organoantimony compounds have a long history, dating back to 1850 when Löwig and Schweizer first reported triethylantimony, prepared by the reaction of ethyl iodide with a potassium—antimony alloy. As the author points out in the preface, over 3000 organoantimony compounds have been described to date in some 1200 papers and 400 patents. In spite of these numbers, organoantimony chemistry is one of the more underdeveloped areas of main group organometallic chemistry, having ridden the coattails of the much more vigorously pursued organoarsenic chemistry as developed by Michaelis and Ehrlich around the turn of the century and by later workers during the past 50 years.

The present volume is the first in a series of "Gmelins" which will cover all these organometallic derivatives of antimony. It deals with mono- and dinuclear organoantimony compounds which contain three Sb—C bonds per antimony atom. The mononuclear compounds comprise R_3Sb , R_2SbR' , $RR'R''Sb$ and cyclics of type $RSbR'$. The dinuclear compounds are principally of the type $R_2Sb—Y—SbR_2$, where $Y = (CH_2)_n$, CN_2 , $CH=CH$, $C\equiv C$, $C\equiv C—C\equiv C$ and 1,2- and 1,4-arylene. With even such limited fare, 185 pages of text have accumulated in which preparation, physical and spectroscopic properties and the chemical reactions of these compounds are detailed. Useful to the transition metal chemist will be the coverage of the chemistry of these organoantimony compounds as ligands in transition metal complexes, although the properties of the complexes themselves are not provided here. Applications and physiological activity also are included in the discussions. Thus we may read that exposure of rats to the vapors of trimethylantimony "caused complete hair loss which was followed by a luxuriant regrowth". However, since, as we are told elsewhere, trimethylantimony "reacts violently with oxygen in the air, sometimes with an explosion," we wonder how the experiments with these ultimately hirsute rats were carried out.

All the data which are provided are exhaustively documented by an abundance of references to research papers, theses, patents and conference reports. A general literature section begins the book. This contains sections listing books, book chapters and reviews on organometallic compounds in general

(too exhaustive to be useful; a few good references would be much more appropriate), on organometallic compounds of the Main Group V elements, on organoantimony compounds, on their analysis and on their medical, pharmaceutical and biocidal uses. The more specific sections will be a useful guide to the newcomer to organoantimony chemistry. A 29 page formula index concludes the book.

Happily for most readers, the present volume is one of the "new" Gmelins: it is written entirely in English. Those who are active in Group V organometallic chemistry will welcome this new book and will look forward to further volumes of this series.

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