

## Book Review

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### *Inorganic Reactions and Methods. Volume 10. The Formation of Bonds to C, Si, Ge, Sn, Pb (Part 2)*

Edited by J. J. Zuckerman (founding editor) and A. P. Hagen (editor), published by VCH Verlagsgesellschaft, Weinheim Basel/Cambridge/New York, 1989, XVIII, 506 pp., 2 Figures, 33 Tables, £141.00, subscription price £122.00.

This volume is part of a series of 18 volumes that describe in an unprecedented and original manner all of inorganic reaction chemistry. The basis of classification is the bond formation and the type of reaction. Using the periodic system as a correlative device, it is shown how bonds between pairs of elements can be made. Treatment of the overall series begins with hydrogen making a bond to itself in H<sub>2</sub> and proceeds according to the periodic table, through the formation of bonds between hydrogen and the halogens, the groups headed by oxygen, nitrogen, carbon, boron, beryllium and lithium to the formation of bonds between hydrogen and the transition and inner-transition metals and elements of group zero. This pattern is repeated across the periodic system until all possible combinations of the elements have been treated. This plan allows most reaction topics to be included in the sequence where appropriate. Reaction types that do not arise from the systematics of the plan are brought together in the concluding chapters.

The focus is on the primary formation of bonds, not on subsequent reactions of the products to form other bonds. These latter reactions are covered in the section where the formation of those bonds is described. Physical and spectroscopic properties or structural details of the products are not reported in these volumes, which are concerned mainly with synthetic utility based on yield, economy of ingredients, purity of product, specificity, etc. The preparation of short-lived transient species is not described.

This tenth volume together with volumes 9, 11 and 12 has the topic: "Formation of Bonds to C, Si, Ge, Sn, Pb". It is subdivided into two chapter headings: "Formation of Bonds between Elements of Group IVB (C, Si, Ge, Sn, Pb) and Group IIIB (B, Al, Ga, In, Tl)" and "Formation of Bonds between Elements of Group IVB (C, Si, Ge, Sn, Pb) and Group IIA (Be, Mg, Ca, Sr, Ba, Ra)".

Important industrial aspects of the reaction chemistry are reported in separate sections. Moreover, it is worthwhile noting an original aspect of the description of the reaction chemistry, i.e. the report of X-ray structures either of products or reactants which are directly inserted in the reaction schemes.

Emphasis is given to yields and experimental aspects of the reactions. At the end of each division, section or subsection heading there are the names of the authors. A list of references completes each article. The literature related to any particular subject is covered up to 1986.

At the beginning of the volume there are a few pages entitled "How to use this book" where the organization of the volume and the way to read and to use it are presented. The organization of the material is readily apparent from an examination of the headings listed in the table of contents. The reader, therefore, through the table of contents alone, can in most instances quickly reach the desired material and derive the information wanted. In addition there is an author index (derived from the lists of references), and an index of empirical formulas is also provided. Each original empirical formula is followed by a linearized structural formula and key words describing the context in which the compound is discussed. All indexes refer the reader to a subsection rather than to a page number. Moreover there is a list of those abbreviations that are frequently used in the text of the volume at hand or in companion volumes. Abbreviations that are used incidentally or have no general applicability are not included in the list but are explained at the place of occurrence in the text. Again, the subject index provides access to the text by way of methods, techniques, reaction types, apparatus, effects and other phenomena. Reference to periodic groups avoids cumbersome enumerations. Section headings in the series employ the nomenclature. Unfortunately, however, there is at the present time no general agreement on group designations. To avoid confusion an appropriately labelled periodic table is printed on the back endpaper.

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