

Book reviews

Methods of Organic Chemistry (Houben-Weyl),
4th edn
D Klamann (ed)

E 12b, Organotellurium Compounds

K J Irgolic

G. Thieme Verlag, Stuttgart, 1990

1004 pages DM 1340 (subscription/preferential price:
DM 1206).

ISBN 3 13 219904.

This book contains an exhaustive presentation of the literature concerning the preparation and properties of organotellurium compounds, including papers published in 1990. Although they are not truly organometallic compounds, tellurium derivatives without a direct tellurium–carbon bond, but containing at least one carbon atom in their molecule, are also treated.

The book consists of an introduction, ten chapters, and author and subject indexes.

The introduction presents a short history of organic tellurium chemistry, which suggests the increasing interest in this field. The classification and the nomenclature of organic tellurium compounds and some precautions which must be taken in work with such compounds are also discussed.

Chapter I is devoted to the synthesis of organic tellurium compounds which do not contain Te–C bonds in their molecule. These compounds are classified as derivatives of telluroxylic, orthetellurous and telluric acids. Telluroxylic and orthetellurous acid derivatives are arranged according to the groups of the Periodic Table to which the atom bonded to tellurium belongs. With the exception of hexa-alkoxytellurium compounds, all telluric acid derivatives contain at least one fluorine atom, and are arranged according to the number (one to five) of Te–F bonds contained in their molecule.

All the other chapters describe the synthesis of compounds containing at least one tellurium–carbon bond. Thus, Chapter II is devoted to neutral organotellurium compounds with one Te–C bond, and containing divalent, tetravalent or hexavalent tellurium. Ionic compounds, $R\text{--}TeHal_2^+$ and $R\text{--}TeHal_4^+$ are also presented.

Chapter III deals with organotellurium compounds containing two tellurium–carbon single bonds or one tellurium–carbon double bond, while Chapter IV describes the synthesis of compounds with three Te–C bonds.

Tetraorganotellurium, alkylidene diorganotellurium and hexaorganotellurium compounds are presented in Chapter V.

Chapter VI describes the synthesis of polymeric organotellurium compounds, e.g. poly(alkylenetellurium), poly(arylenetellurium).

The last four chapters are devoted to heterocyclic tellurium compounds: three- and four-membered ring systems (Chapter VII), five-membered (Chapter VIII), six-membered (Chapter IX) and seven-membered (Chapter X) tellurium heteroarenes.

The book contains a bibliography including the most important reviews and books on organic tellurium chemistry. The literature references are cited at the bottom of each page.

The book is warmly recommended to anyone interested in the synthesis of organotellurium compounds, providing systematic and exhaustive data about all tellurium compounds known so far, and, especially, a large number of general and particular methods for their preparation. No library of any institute or laboratory involved in organometallic chemistry should exist without this book!

CRISTIAN SILVESTRU
Babes-Bolyai University,
Cluj-Napoca, Romania

Preparative Polar Organometallic Chemistry, Volume 2

L Brandsma

With the collaboration of H Andringa, Y A Heus,
R Rikers, L Tip and H D Verkruijsse

Springer-Verlag, 1990

Approx. 200 pages Softcover DM86.

ISBN 3 540 52749 4.

Preparative Polar Organometallic Chemistry is essentially a compilation of experimental procedures for the formation and functionalization of organoalkali metal compounds. Volume 2 is concerned with compounds having metals bonded to sp^3 -carbon atoms (Volume 1 deals with metal– sp^2 -carbon bonded compounds).

As stated in the Preface, each procedure (usually on a 0.1 molar scale) has been established in the author's laboratory; experimental details are generally excellent and clear. Clearly only a limited number of reactions can be detailed in such a book; however, adaptations of the cited procedures to related systems should be easily

devised and should extend greatly the scope and utility of the book.

The initial chapter discusses the reactivity of polar organometallic species and is followed by chapters concerned with the metallation of (i) aromatic and olefinic hydrocarbons, (ii) saturated sulphur compounds, (iii) methyl-arenes containing hetero substituents, (iv) hetero-substituted allylic and benzylic compounds, (v) heterocyclic compounds, (vi) aldimines and ketimines, (vii) nitriles and isonitriles, (viii) halohydrocarbons and (ix) carbonyl and thiocarbonyl compounds. In each of these chapters, a specific introduction and discussion of the literature precedes the experimental procedures.

In all, the book will be a very valuable manual for any organic/organometallic laboratory; it is certainly a most welcome acquisition for this reviewer's laboratory.

J L WARDELL
University of Aberdeen

Metal Ions in Biology and Medicine

P Coltery, L A Poirier, M Manfait and J C Etienne
(eds)

John Libbey Eurotext, Paris, 1990
579 pages. \$75.00
ISBN 0 86196 243 5.

Many scientists throughout the world, including chemists, biochemists and physicians, are involved in research projects concerning the implications of both Main Group and transition-metal ions in life processes. In spite of the hard work done in this field, there are still many gaps in understanding the exact role of metal ions. Therefore, it was very important for these scientists to meet and to expose the results of their studies. This opportunity was offered by the First International Symposium on Metal Ions in Biology and Medicine, which was held in Reims (France), on 16–19 May 1990.

The papers presented at this international symposium by scientists and physicians from 25 different

countries are organized in the four chapters of this book.

Chapter A is devoted to papers presenting the results obtained with common metals, i.e. sodium, potassium, magnesium, calcium, manganese, iron, cobalt and zinc related to their implications in the immune system, inflammation, carcinogenesis, aging and miscellaneous diseases.

The second chapter of the book contains studies on the same major themes of the Symposium, using toxic metal ions, e.g. beryllium, barium, aluminium, lead, titanium, vanadium, chromium, nickel, cadmium, cerium etc. Some papers are also devoted to tissue distribution, antidotes and various other biological effects of such metals and their compounds.

Studies on the therapeutic metal complexes, such as compounds of lithium, germanium, tin, selenium, lanthanum, titanium, ruthenium, platinum, gold and others, used in cancer treatment, are presented in the papers included in chapter C. Reports on the antitumour activity of platinum, gold, gallium, ruthenium and selenium, as well as other new metal compounds, including organometallics, are grouped in a special section.

Several papers are also devoted to the use of various radioisotopes in the early diagnosis of cancerous diseases or as radiosensitizers.

Chapter D presents some new results on the interactions of metal ions with biological molecules, pointing out the large variety of metal bonding possibilities in life systems.

The book also contains an author index of all the scientists who contributed by their work to the success of this symposium.

In conclusion, this book underlines the importance of interdisciplinary studies and of the co-operation between chemists, biochemists and physicians in order to understand the role of metal ions in biological systems. Therefore, it is warmly recommended to all scientists involved in the synthesis of new metal complexes and their toxicological, animal and even clinical therapeutic screening.

CRISTIAN SILVESTRU
*Babes-Bolyai University,
Cluj-Napoca, Romania*