Organobismuth Chemistry. By H. Suzuki, Y. Matano. Elsevier: New York, **2001**, hardback 131.60, ISBN 0-444-20528-4, 636pp.

There is increased interest in the chemical community to find environmentally friendly reagents for use as reagents in organic synthesis. The recognition of the low toxicity of bismuth and its compounds has sparked renewed interest in bismuth chemistry in the last two decades and hence a book on organobismuth chemistry is both, welcome and appropriate. The authors have done an excellent job of providing a comprehensive review of all aspects of organobismuth chemistry. Understandably, non-stoichiometric compounds and metal alloys are not included in this work. Since the focus is on academic aspects, patents are only mentioned when appropriate. Chapter 1 includes an introduction to the physical properties of bismuth compounds, their occurrence and uses in the industry. However only a limited, nonetheless useful, discussion of the toxicology of bismuth and its compounds is provided. The rest of the book is divided logically into chapters that address organobismuth(III) and organobismuth(V) compounds as well as bismuth-containing heterocycles. The final chapter deals with structural aspects of organobismuth compounds.

A very attractive feature of this book is that a large number of experimental procedures are given, thus providing an alternative to looking up the original literature. A detailed table of contents as well as index makes searching for specific reaction types and compounds relatively easy. Most numerical data is conveniently presented in a tabular form along with the sources for the spectral data. Readers should find the comprehensive list of references that are organized chronologically at the end particularly useful.

Chapter 2, the longest in the book (220 pages) discusses at length the chemistry of organobismuth(III) compounds. The chapter focuses on both methods of synthesis of this class of compounds and their properties. As in other chapters, both descriptive procedures as well as comprehensive tabular data is provided. The chapter is subdivided into sections according to the type of bond. Compounds with bismuth-group IV, V, VI and VII bonds are discussed extensively.

Chapter 3 deals with organobismuth(V) chemistry. A useful feature is the inclusion of structures of all compounds that are abbreviated when listed in the tabular form. The focus is again on synthesis and properties but spectroscopic properties are also briefly mentioned.

Even though the number of ring compounds containing bismuth is not large, they are grouped together in chapter 4 and classified according to whether the ring contains only carbon and bismuth (bismacycles) or also a heteroatom (heterobismacycles). A detailed table listing properties and methods of synthesis of heterobismacycles along with detailed references should be of use to anyone working in this emerging field.

Chapter 5 (70 pages) is devoted to an area that has experienced the greatest growth in the last decade – the applications of bismuth compounds in organic synthesis. Bismuth(III) compounds have seen increasing use as Lewis acid catalysts recently. The chapter is organized by reaction type and several experimental procedures are included which the reader should find very convenient. Bismuth salts have proved to be remarkable in catalyzing carbon-carbon bond forming reactions. Hence a detailed section on this useful class of reactions is included and whenever possible, mechanistic studies are discussed as well.

The final chapter deals with structures of organobismuth compounds and includes cyrstallographic structures of a wide variety of trivalent and pentavalent bismuth compounds.

In summary, the textbook presents the reader with a very comprehensive survey of organobismuth chemistry. Anyone practicing bismuth chemistry or Green Chemistry should find this book a useful addition to their bookshelf.

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Synthesis 2002, No. 4, 15 03 2002. Article Identifier:
1437-210X,E;2002,0,04,0578,0578,ftx,en;B10402SS.pdf.

ISSN 0039-7881