

Science of Synthesis, Volume 33: Ene-X Compounds (X = S, Se, Te, N, P), edited by G. Molander, Georg Thieme Verlag: Stuttgart, 2006, hardcover, 866 pp, € 2200 ISBN 978-3-13-118851-9 (RoW) / US\$ 2640, ISBN 978-1-58890-464-5 (US)

Volume 33 of *Science of Synthesis* deals with the synthesis of *Ene-X Compounds*, a motif comprising two carbon atoms and one heteroatom (chalcogen, nitrogen, or phosphorus). The volume editor, Gary Molander, has selected among the best international specialists to review preparative methods of these classes.

It starts with alkenyl sulfur compounds. The various oxidation states are represented according to their rich chemistry, among which sulfones, sulfoxides and sulfides have been widely studied. Selenium and tellurium analogues are also reviewed.

A second large third of the book deals with the most utilized alkenyl nitrogen compounds, also with a variety of structures. Nitroalkenes and enamines occupy a major place, according to their significant synthetic utility.

The last third of this volume is related to tri- or pentavalent phosphorus compounds. Alkenyl phosphonic acid derivatives, phosphines and their oxides, and phosphonium salts are among the most important basic moieties.

The structural organization is relatively easy to follow with introductory tables. Acyclic compounds are treated first. In general, much effort has been devoted to focus on the most important and applicable methods. A major advantage of this book is that the reader can rapidly judge the amount of information that is available for each class of compounds and about the diversity of methods. The less common types of compounds are also treated, appropriately in a brief fashion.

Though the organization of the synthetic methods and variations is not straightforward to the newcomer, the presentation and subtitles are clear, which definitely helps to read the chapter.

The general introductions efficiently provide the state of the art of both the interest and the accessibility of each class of compounds.

In a minority of chapters, a few pages attempt to summarize the applications of a product subclass. The information provided tends to be meager (weak), as a result of space limitation. Most of the authors have omitted these parts.

The homogeneity of presentation of the schemes and the text are remarkable for a book with 23 authors, probably as a result of the efficient help and control of the editor and publisher.

Hundreds of properly selected experimental procedures are described in standardized style. Safety cautions have been introduced in many chapters (with quite discouraging assumptions of chapters about selenium and tellurium derivatives, which should probably not have been made so general). More than 80 pages of indexes are available.

The literature selection work, which has been necessary to complete this volume, is impressive, both in volume (866 pages) and efficiency. Enormous advances for the synthesis of ene-X compounds have been accomplished since the last edition of Houben-Weyl. The diversity of methods reported illustrates the maturity of heteroatom chemistry, in terms of access and applications, for the creation of C-C or C-X bonds with chemo-, regio- and stereoselectivities, as well as uses in the fields of biologically active molecules or advanced materials. The various authors and the volume editor must be congratulated and thanked for their rigorous analysis and writing of the various chapters. This volume is necessary for the research centers involved in these fields and is recommended for the (wealthy) libraries.

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