

Additions and Corrections

Isomerization of (π -Allyl)Palladium Complexes via Nucleophilic Displacement by Palladium(0). A Common Mechanism in Palladium(0)-Catalyzed Allylic Substitution [J. Am. Chem. Soc. 1992, 114, 6858–6863]. KENNETH L. GRANBERG AND JAN-E. BACKVALL*

Page 6860, Table III, entry 8, for *trans*-1c: The last column of this entry should be 1/199 and not 199.

Book Reviews *

Advances in Silicon Chemistry. Volume 2. Edited by Gerald L. Larson (Hüls America, Inc., Piscataway, NJ) JAI Press: Greenwich, CT, 1993. xii + 196 pp. \$90.25. ISBN 1-55938-177-9.

This book is the second in a series presenting review articles on a range of topics in organosilicon chemistry. The series features authors who themselves have made major contributions to the literature of organosilicon chemistry, and the current volume is no exception. For that reason, the authors give a major amount of attention to their own work, but in all three of the present reviews, the current literature is well covered through the end of 1991 and there are some references into 1992.

The initial contribution in the current volume is a thorough review of the chemistry of α,β -epoxysilanes by Paul and Anne Hudrlik. There is considerable emphasis on practical aspects of the preparation of epoxysilanes and their use in organic synthesis, including, of course, the Hudrlik's own work on olefin synthesis. A modern review of this chemistry is long overdue, and the present contribution neatly fills the void. There are interesting mechanistic puzzles in this chemistry, such as the factors influencing the regiochemistry of epoxide ring-opening, and the review gives appropriate consideration to reaction mechanisms as well as synthetic utility.

The remaining two chapters in the volume are a neat pair. The first is Gas Phase Studies of the Negative Ion Chemistry of Silicon by Bob Damrauer, which summarizes flowing afterglow (and some ion cyclotron resonance) work, much of it pioneered by Damrauer, DePuy, and their co-workers. The presentation is at a level that can be appreciated by beginners; indeed, it is a particularly effective starting point for silicon chemists who want to become familiar with this area but who are not interested in experimental details. There is particularly thorough coverage of gas phase acidities of silicon compounds, as well as electron affinities, hydride affinities, and other thermochemical properties available by these techniques. The second major section of the review summarizes current knowledge of gas-phase reaction chemistry between silicon compounds and anions and concludes with a summary of recent work employing tandem FA-SIFT. There is great potential in all this work for collaborations with gas phase kineticists as well as theorists, and Damrauer has effectively exploited the possibilities, an aspect of his work that comes through effectively in the present review.

The third contribution in the present volume is Theoretical Investigations of the Thermochemistry and Thermal Decomposition of Silanes, Halosilanes, and Alkylsilanes by Gordon, Francisco, and Schlegel. As the authors point out, the thermochemistry of silicon compounds is one of the real success stories of the interplay between modern theory and experiment, and Mark Gordon has been a pioneer in application of theory at the highest level to problems of serious interest to silicon chemists. The present review treats heat of formation data in detail for the classes of compounds in the title, followed by theoretical predictions of reaction energetics. The review limits itself to considerations of *ab initio* calculational methods but is a thorough treatment of that area, including much work by the current authors but many others as well. In both this and the previous chapter, the tabular information is of great interest to any silicon chemists who employ thermochemical calculations (which, at least at some level, ought to be almost all of them). There are very good summaries here of the capabilities and the limitations of *ab initio* calculational methods in

treating most of the kinds of problems that silicon chemists are interested in. Furthermore, the presentation is clearly meant to be informative to experimentalists as well as theorists.

This volume has much to recommend it. The work described is of wide interest to the silicon chemistry community but also to others employing theory and experiment to study the chemistry of heavier atoms. The volume is well-edited, and it is hard to find errors of any kind, even typographical ones (in marked contrast to the advertising fliers put out by the publisher).

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The Adventure Playground of Mechanisms and Novel Reactions. Profiles, Pathways, and Dreams. By Rolf Huisgen and Jeffrey I. Seeman (Series Editor). ACS: Washington, DC, 1994. xxiv + 280 pp. \$24.95. ISBN 0-8412-1832-3.

This book is one of 22 in the Profiles, Pathways, and Dreams autobiographies series of famous chemists in which individual chemists discuss their roles in the development of chemistry. In this book, Huisgen describes his life, including his work in reactions of diazo compounds, azoles, and azides and cycloadditions of ketenes.

Natural Gas Conversion II. Volume 81. Studies in Surface Science and Catalysis. Edited by H. E. Curry-Hyde and R. F. Howe (University of New South Wales). Elsevier: Amsterdam, 1994. xiv + 580 pp. \$242.75. ISBN 0-444-89535-3.

This book was developed from the Proceedings of the Third Natural Gas Conversion Symposium held in Sydney, Australia, on 4–9 July 1993. After a preface by the editors, a list of organizers, and an acknowledgment of financial support, the book is divided into three sections: Plenary Lectures, Keynote Lectures, and Contributed Papers. The third section, Contributed Papers, contains 78 chapters organized under the following headings: Oxidative Coupling; Synthesis Gas Chemistry; Methanol Synthesis and Conversion; Fischer-Tropsch Chemistry; Heterogeneous Methane Activation; Homogeneous Methane Activation; and Natural Gas Conversion Related Processes. There is an author index.

Sulfur Compounds in Foods. ACS Symposium Series 564. Edited by Cynthia J. Mussinan and Mary E. Keelan (International Flavors and Fragrances). ACS: Washington, DC, 1994. x + 302 pp. \$79.95. ISBN 0-8412-2943-0.

This book was developed from a symposium sponsored by the Division of Agricultural and Food Chemistry at the 206th National Meeting of the American Chemical Society held in Chicago on 22–27 August 1993. After a preface and an introductory chapter by the editors, there are 21 additional chapters organized under the following headings: Analysis and Flavor Characteristics, Formation, and Functional Properties. There are author, affiliation, and subject indexes.

Lipids in Food Flavors. ACS Symposium Series 558. Edited by Chi-Tang Ho and Thomas G. Hartman (Rutgers, The State University of New Jersey). ACS: Washington, DC. x + 334 pp. \$89.95. ISBN 0-8412-2922-8.

*Unsigned book reviews are by the Book Review Editor.

This book was developed from a symposium sponsored by the Division of Agricultural and Food Chemistry at the 205th National Meeting of the American Chemical Society held March 28–April 2, 1993, in Denver, CO. After a preface by the editors, there are 22 chapters organized under the following headings: Lipid Oxidation, Interaction, and Flavors; Processing and Storage Effects on Lipid-Derived Food Flavors; Flavor of Animal Lipids; and Flavor of Plant Lipids. There are also author, affiliation, and subject indexes.

Porphyric Pesticides. Chemistry, Toxicology, and Pharmaceutical Applications. ACS Symposium Series 559. Edited by Stephen O. Duke (U.S. Department of Agriculture) and Constantin A. Rebeiz (University of Illinois). ACS: Washington, DC. 1994. x + 318 pp. \$79.95. ISBN 0-8412-2923-8.

This book was developed from the symposium sponsored by the Division of Agrochemicals at the 206th National Meeting of the American Chemical Society held in Chicago on 22–27 August, 1993. After a preface and an introductory chapter by the editors, there are 20 additional chapters organized under the following headings: Porphyric Herbicides and Porphyric Pesticides in Animals. There are author, affiliation, and subject indexes.

Bioregulators for Crop Protection and Pest Control. ACS Symposium Series 557. Edited by Paul A. Hedin (U.S. Department of Agriculture). ACS: Washington, DC. 1994. x + 222 pp. \$59.95. ISBN 0-8412-2918-x.

This book was developed from the symposium sponsored by the Division of Agrochemicals at the 205th National Meeting of the American Chemical Society held March 28–April 2, 1993, in Denver, CO. After a preface by the editor and an introductory chapter by Louis G. Nickell on plant growth regulators, there are 15 additional chapters

organized under the following headings: Current Applications of Plant Growth Regulators to Crop Production; Natural Products as Emerging Bioregulators of Crop Protection and Production; and Mechanisms of Interactions of Natural Bioregulators and their Hosts. There are author, affiliation, and subject indexes.

Techniques and Mechanisms in Electrochemistry. By P. A. Christensen and A. Hamnett (University of Newcastle upon Tyne). Blackie Academic: London. 1994. x + 380 pp. £24.95. ISBN 0-7514-0129-3.

This book is designed for the mid- to advanced-level undergraduates, postgraduates, and electrochemists. After a preface by the editors and a list of symbols, there are three chapters with the following headings: Introduction to Modern Electrochemistry, Techniques Giving Mechanistic Information, and Examples of the Application of Electrochemical Methods. There is a subject index.

Thermal Hazards of Chemical Reactions. Industrial Safety Series. Volume 4. By Theodor Grever. Elsevier: Amsterdam. 1994. xiv + 408 pp. \$217.25. ISBN 0-444-89722-4.

This book provides a basis for understanding the hazards of exothermic reactions for the safe processing of products and mixtures. After a preface by the author, there are 10 chapters with the following headings: Introduction, Phenomenology of Explosions in Reacting Systems, Test Methods for Exothermic Decomposition and Secondary Reactions, Discussion of Characteristic Data of Exothermic Decomposition, Exothermic Secondary Reactions, Primary Reactions, Incidents in Chemical Processes, Thermal Explosion and Runaway Under Practical Conditions, Thermal Hazard Evaluation of Chemical Reactions, and Safety Relevant Data of Substances and References. There is also a list of symbols, an author index, and a subject index.