

Journal of Organometallic Chemistry, 407 (1991) C16–C17
Elsevier Sequoia S.A., Lausanne

Book reviews

The Chemistry of Functional Groups. The Chemistry of Enols; edited by Z. Rappoport, John Wiley, Chichester, 1990, xvi + 823 pages, £195.00 ISBN 0471917206.

This volume is one of the extensive series on the Chemistry of Functional Groups edited by Professor Saul Patai. It maintains the very high standard of its predecessors. The editor has brought together a team of authors who have written some useful chapters reflecting this area of chemistry. Many of the valuable synthetic advances in which organometallic reagents have played an important role involve the chemistry of enols and their derivatives. This volume deals with the chemistry of enols and emphasizes recent developments with a literature coverage upto mid-1989. Although enol ethers and enolates are not covered *per se*, nevertheless there is much important chemistry described here that leads to their formation.

Of particular interest to organometallic chemists are the chapters on NMR, IR, conformation and hydrogen bonding in enols, the generation of unstable enols, keto–enol equilibrium constants, the kinetics and mechanism of enolization and ketonization and the organometallic chemistry of enols. This latter chapter reviews the preparation, characterization, structure and reactivity of transition metal-enol complexes. There are other chapters on theoretical calculations, the thermodynamics of enols, the chemistry of ionized enols in the gas phase, isolable and relatively stable enols, photochemical reactions involving enols, enols of carboxylic acids and esters, the biochemistry of enols and finally the structural chemistry of enols. There are author and subject indexes whilst each chapter is well referenced. Much data is summarized in the form of tables and it must be as a reference book that this volume has its place in the library of all those departments involved in synthetic and mechanistic organometallic chemistry.

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Advances in Sonochemistry, Volume 1; edited by T.J. Mason, JAI Press, Greenwich, Connecticut and London, England, 1990, ix + 287 pages, £54 or \$92.50 (hardcover). ISBN 1-55938-178-7.

The first chapter of this book concludes with the statement that “it is only a matter of time before sonochemistry takes its place along with photochemistry and radiochemistry as an important weapon in the chemical industry’s armoury”. Time will tell whether this optimism in the technique is justified but this volume, being the first in a new annual series, will be of interest to many chemists and should persuade them that the technique is worthy of their serious consideration.

The authors of the chapters and their contributions are as follows: T.J. Mason, Preface; D. Bremner, Historical Introduction to Sonochemistry; M.A. Margulis, The

Nature of Sonochemical Reactions and Sonoluminescence; B. Pugin and A.T. Turner, Influence of Ultrasound on Reactions with Metals; J.-L. Luche, Ultrasonically Promoted Carbonyl Addition Reactions; W.J. Tomlinson, Effect of Ultrasonically Induced Cavitation on Corrosion; K.S. Suslick and S.J. Doktycz, Effects of Ultrasound on Surfaces and Solids; and G.J. Price, The Use of Ultrasound for the Controlled Degradation of Polymer Solutions. That the technique is gaining wide popularity is shown by the fact that the authors of the seven chapters are drawn from five countries namely the United Kingdom, France, Switzerland, the United States, and the Soviet Union.

Readers of this Journal will find the chapters on reactions with metals, carbonyl addition reactions (most of which involve organometallic reagents), and surfaces and solids of greatest interest. Those already familiar with the technique will find that the chapter by Margulis will give much food for thought as it describes a new electrical theory of cavitation phenomena.

The book is very well produced and is written by leading experts in the field. The rapidly expanding subject of sonochemistry will be well served if future volumes in the series are of similar quality and all serious chemical libraries should consider a subscription to it.

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