

Book reviews

Organometallics in Organic Synthesis 2

Helmut Werner and Gerhard Erker (eds)

Springer, Heidelberg 1989

322 pages, 223 Figures. DM 94.00. ISBN ??

This book is a collection of 17 main lectures presented at the second symposium on 'Organic Synthesis via Organometallics' held in Würzburg, FRG, from 19 to 22 October 1988. From the topics covered it complements the previous volume, *Organometallics in Organic Synthesis*, edited by A. de Meijere and H. tom Dieck. The lectures cover the important area of organotransition-metal complexes as reagents or catalysts in organic syntheses. Most organic chemists at some stage in their training or career, will have used one of the more 'traditional' organometallic reagents such as organomagnesium, organolithium, organoaluminium, or organocopper. Research groups throughout the world have more recently formulated new organometallic compounds, particularly of the transition metals, which have found new applications in organic syntheses.

The diverse use of these organotransition-metal complexes can be certified by the topics covered in the proceedings of the symposium: C–C coupling reactions using nickel(0), palladium, and iron complexes; highly reactive π -arene iron complexes and their use in stoichiometric and catalytic cyclic addition reactions; stereochemistry of arenetricarbonylchromium complexes as useful intermediates for stereoselective syntheses; ironcarbonyl complexes of exocyclic polyenes; metal-induced dimerizations of cyclic diacetylenes; novel catalytic applications of ruthenium clusters; selective organic synthesis by diene complexes of the early transition metals zirconium, titanium, tantalum, and niobium; di-Grignard reagents; complexation of carbanions on transition metals; Organometallic transformations via C–H bond activation; bare transition metal ions in the gas phase; activation of multiple binding systems on clusters; directed and undirected syntheses of novel organic compounds via iron, cobalt, and chromium complexes; optically active transition metal catalysts and transition metal compounds; diolefin iron complexes; cyclopropanes via Fischer carbene complexes.

The lectures were presented by experts in the field and useful references to reviews and an up-to-date bibliography have been included. This volume makes a significant contribution to the area of organotransition-metal complexes, and both the worker in this field and the 'ordinary' synthetic chemist will benefit greatly from having access to a copy.

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Crown ethers and analogs

S Patai and Z Rappoport (eds)

Wiley, Chichester, 1989

558 pages \$253.25, ISBN 0 471 91707 9

This is the third volume published in the new series entitled 'Updates from the Chemistry of the Functional Groups'. Chapters 1 (Synthesis of crown ethers and analogues, by D. A. Laidler and J. F. Stoddart), 2 (Organic transformations mediated by macrocyclic multidentate ligands, by C. L. Liotta), 4 (Crown ethers—complexes and selectivity, by F. Vögtle and E. Weber) and 6 (Geometry of the ether, sulphide and hydroxyl groups and structural chemistry of macrocyclic and non-cyclic polyether compounds, by I. Goldberg) were originally published in Supplement E in 1980, while Chapter 8 (Complexation of aryldiazonium ions by polyethers, by R. A. Bartsch) is reprinted from Supplement C (1983).

In Chapter 3, by J. L. Toner, modern methods of molecular modelling as applied to host–guest chemistry are reviewed whilst, in Chapter 5, by E. Weber, a thorough survey of new types of complexes is given. Chapters 7 and 9 are essentially updates of Chapters 6 and 8 respectively, although they also contain much novel material.

The book is well presented with few typographical errors and the contributions are generally of a very high standard. It is highly recommended for those already working in crown ether chemistry and those intending to enter this field.

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