

Journal of Organometallic Chemistry, 91 (1975) C21

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Book review

Organotransition Metal Chemistry. A Mechanistic Approach, by R.F. Heck, Academic Press, New York, 1974, xii + 338 pages, \$27.00.

This work continues the series of monographs on organometallic chemistry under the editorship of P.M. Maitlis, F.G.A. Stone and R. West. The stated goal of the book is to provide background and summary information for organic chemists wishing to use metal complexes for synthetic purposes, and to stimulate organic research in this area.

The first three chapters are devoted to introductory material such as bonding, nomenclature, applications of the eighteen electron rule, and basic synthetic routes. Chapters IV-VIII are organized according to reaction type, treating topics such as hydrogenation-dehydrogenation, olefin isomerization and a variety of polyene and acetylene transformations. Chapters IX and X are devoted to activation of small molecules such as CO, O₂, N₂, and SO₂ and reactions of metal-carbene complexes. Both stoichiometric and catalytic processes are discussed. The subject and author indexes are quite useful, and each chapter is concluded with a list of recent review articles pertinent to the subject under discussion. The general references (676 total) cover the literature through 1972, and some 1973 and 1974 reviews are included.

Professor Heck has produced a quite readable and useful book which, as befits the title, is replete with first rate figures and illustrations. This volume should admirably fulfill its stated purpose and, in addition, provides an overview of the present level of understanding of organometallic reaction mechanisms. By the author's admission it is less than comprehensive in nature, but should nevertheless serve to focus new attention on mechanistic studies and as a source book for all those working in the area of transition metal organometallics.

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