



METADATA

Title: Organometallic-Catalytic Chemistry

Other Titles: -

Language: Greek

ISBN: 978-960-603-317-9

Subject: NATURAL SCIENCES AND AGRICULTURAL SCIENCES

Keywords: Synthetic Methods / Organometallic Reagents / Metal Catalyzed Reactions / Reaction Mechanisms / P-Ligands

Bibliographic Reference: Dimadis, K., & Kokolakis, A. (2015). Organometallic-Catalytic Chemistry [Undergraduate textbook]. Kallipos, Open Academic Editions. <http://dx.doi.org/10.57713/kallipos-490>

Abstract

The e-book "Organometallic-Catalytic Chemistry" is aimed at undergraduate and postgraduate students of Chemistry, Biology, and Pharmacy, as Organometallic Chemistry is an interdisciplinary science that continues to develop rapidly, especially in recent decades, in all areas of industry related to the production of chemical products (e.g., polymers) and the health sector. Organometallic reactions and catalytic cycles are a useful tool both for scientists who have been working in the field of Organic and Inorganic Chemistry for many years and seek to enrich their knowledge with new reactions, as well as for readers who are new to the field of organometallic reagents. Briefly, the topics covered include: Structure of organometallic compounds. The nature of the bonds of substituents present

in organometallic reagents. The preparation of organometallic reagents and their participation as catalysts or selective reagents in Organic and Inorganic Chemistry reactions. Mechanistic pathways of organometallic reactions (main reactions of oxidative addition, reductive elimination, hydride elimination, etc.). Polymerization of organic compounds with olefinic rearrangement by organometallic catalysts (Schrock and Grubbs) and C-C bond formation reactions catalyzed by transition metals (Stille, Suzuki, Heck, Negishi, Sonogashira, Tsuji-Trost reactions, etc.). Homogeneous (acetaldehyde synthesis according to Wacker-Smidt, Wilkinson catalytic hydrogenation, acetic acid according to Monsanto, etc.) and heterogeneous catalysis (polyethylene synthesis with Ziegler-Natta catalysts).

