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A review of: "Synthetic Methods of Organometallic and Inorganic Chemistry"

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BOOK REVIEW

W. A. Hermann (Ed.), *Synthetic Methods of Organometallic and Inorganic Chemistry*, Vol. 8, Part 2, Georg Thieme Verlag, Stuttgart-New York, 1997, 254 pp., DM 185, ISBN 3-13-103091-7

This book is the last volume of a series the purpose of which is to provide the user with information on the preparation and characterization of certain organometallic and inorganic compounds. Therefore, the title is somewhat misleading since *methods* are given only in Vol. 1 while the following volumes present *preparative procedures* for a large number of compounds of mainly academic interest. The present book "Transition Metals, Part 2" has been prepared by C. E. Zybill of the Technical University Munich. It provides information on more than 200 compounds most of which are of the sandwich or half-sandwich type containing two or one cyclic organic ligand(s) and a large variety of transition metals, including technetium and thulium. Many authors have contributed to this book providing experimental procedures from their laboratories.

Chapter 1 (41 pages) deals with complexes containing cyclic ligands C_nH_n from bis(η-cyclopentadienyl)vanadium via analogous compounds of Cr, Mn, Fe, Co, and Ni to species with mixed ligands or with three cyclic ligands. The major Chapter 2 (113 pages) covers the preparation of complexes with one cyclic ligand and additional carbonyl, nitrosyl, hydride, halide, or other ligands, e.g. SO_2 CS_2, CS, or NS. Examples containing simple sulfur ligands are the mononuclear derivatives $Cr(C_6H_3Me_3)(CO)_2(CS_2)$, $Cr(C_5H_5)(CO)(CS)(NO)$, $Cr(C_5H_5)(CO)_2(NS)$, and $Mn(C_5H_5)(CO)_2(CS)$. In addition, the sulfinato complex $Fe(C_5H_5)(CO)_2(SO_2Me)$ and the thiocarbonyl-sulfenyl compound $Fe(C_5H_5)(CO)_2(CSSMe)$ are described. Two dinuclear titanocene species bridged by sulfido ligands are also included. The final Chapter 3 (70 pages) describes miscellaneous complexes, *inter alia* several homoleptic sulfitopalladates(II) and -platinates(II) with the cations of Na, K, or NH_4. The preparative procedures given are

supplemented by a description of the properties of the particular compound including spectroscopic data as well as by a list of references. A detailed index of 22 pages helps to find the desired compounds, *e.g.* the 11 sulfur-containing substances.

A book of this type is particularly valuable if the reliability and reproducibility of the reported procedures is somehow guaranteed. One can only hope that this is the case here since the book will mainly be used for teaching advanced inorganic lab courses. However, in many cases the procedures given are as short as in the original literature lacking important details regarding the necessary equipment, the purity of solvents, the type of vacuum pump, etc. This is the kind of information a student needs to successfully prepare a compound new to him without the well known initial failures which make preparative work often so frustrating. It is unfortunate that the editor (whose name occurs three times on the front cover) did not design a uniform scheme for the authors to give all the necessary experimental details. Nevertheless, this book is a very useful source of information on modern transition metal compounds, it should therefore be available in any chemistry library.

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