
This latest volume in the series continues the high standards set by the previous volumes. The quality of the binding, paper, and print is high and there are relatively few typographical errors. The subject index (9 pages) is usable, but not complete. Cumulative lists of contributors and titles to date in the series are included. Comments on individual chapters follow.

Recent Developments in Theoretical Organometallic Chemistry (D.M.P. Mingos) (45 pp.). The emphasis of this chapter is on the results of recent theoretical calculations, not on the techniques per se. However, a brief description of the commonly used calculations is given and the results of various methods compared. The bonding, structure, stability, etc. of olefin, polyolefin, sandwich, and polymetal cluster complexes are discussed. The references are generally up to 1975, although a few later ones are included.

Metal Atom Synthesis of Organometallic Compounds. (P.L. Timms and T. W. Turney) (55 pp.). This chapter is rough reading in spots due to a higher than average number of typographical errors and lack of careful editing (for example, p. 64, "...vacuum temperature...." and p. 85, "...halogen abstraction, e.g. polymerization..."). In spite of its flaws, the chapter is well conceived and thorough. Topics covered are experimental methods, reactions of metal atoms with 2-electron donors (CO, R₃P, alkenes, etc.), with many-electron donors (polyenes, arenes, etc.), insertion reactions with organic halides, a comparison of methods, and a Table of reactions. References are to Feb. 1976.
Metal Complexes of π-Ligands Containing Organosilicon Groups
(I. Haiduc and V. Popa) (32 pp.). This chapter reviews the synthesis
of metal complexes of π-ligands of the type, $R_n\text{Si-π}_4\text{-}n$. The
ligands are classified as to the number of electrons donated to
the metal and include, 2,3,4,5, and 6-electron donors, large rings,
bicyclics, and silylated acetylenes. A note added in proof updates
the references through 1975 with some from 1976.

Activation of Alkanes by Transition Metal Compounds (D. E.
Webster) (39 pp.). The bulk of this chapter is devoted to the
activation of alkanes, alkyl benzenes, and benzene to H-D exchange
by platinum compounds. A valiant attempt is made to correlate a
large amount of experimental data with various mechanistic schemes.
Also reviewed are reactions involving C-H bonds on coordinated
ligands, chlorination of organics by Pt(IV), and oxidation of
alkanes of Co(III). Structure XX (p. 157) is incorrect (see Chem.

Supported Transition Metal Complexes as Catalysts (F. R. Hartley
and P. N. Vezey) (42 pp.). This chapter contains a good discussion
on the preparation of various supported catalysts and a comparison
of supported, heterogeneous, and homogeneous catalysts. Catalysis
of hydrogenation, hydrosilation, hydroformylation, carbonylation,
sequential reactions, etc. by supported catalysts are reviewed.
References are to early 1975.

Structures of Main Group Compounds with Electron-Deficient
Bridge Bonds (J. P. Oliver) (33 pp.). This chapter emphasizes recent
structural results obtained on the indicated complexes. The
various theories of bridge bonds are criticized in light of the
structural results. Covered are compounds of the main groups I-III
(boron excluded). The latest references are from 1975.

Organometallic Radical Anions (P. R. Jones) (40 pp.). The
bulk of the chapter is devoted to radical anions containing main
group IV substituents. A few pages are devoted to electron
transfer processes involving RLi and RMgX compounds. Transition metal derivatives are allotted three pages and there are only two references to boron containing radicals. However, the discussion of Group IV radicals is excellent and comprehensive.

In summary, the latest volume of this series is well worth the cost and provides researchers and students access to reasonably up-to-date reviews and references on a variety of timely topics.

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