

TABLE OF CONTENTS

Licensing

1: Introduction

- 1.1: Bonding Concepts in Main Group Chemistry
- 1.2: VSEPR Theory and its Utility

2: Organometallic Chemistry of s- and p-block Elements

- 2.1: General Methods of Preparation
- 2.2: Organometallic Compounds of Alkali Metals (Sodium and Lithium)
- 2.3: Organometallic Compounds of Alkaline Earth Metals (Beryllium and Magnesium)
- 2.4: Structure and Bonding

3: Organometallic Chemistry of p-block Elements

- 3.1: Reactions of Organometallic Compounds
- 3.2: Organometallic Compounds of Boron and Aluminium
- 3.3: Organometallic Compounds of Gallium and Indium
- 3.4: Zeigler Natta Polymerization Catalysts
- 3.5: Organosilicon and Organogermanium Compounds
- 3.6: Organotin and Organolead Compounds

4: Organoelement Compounds of Group 15

- 4.1: Organometallic Compounds of As(V) and Sb(V)
- 4.2: Organometallic Compounds of As(III) and Sb(III)
- 4.3: Phosphines

5: Group 12 Elements

- 5.1: Organometallic Compounds of Zinc and Cadmium
- 5.2: Organometallic Compounds of Mercury

6: General Properties of Transition Metal Organometallic Complexes

- 6.1: 18 Valence Electron Rule
- 6.2: Synthesis and Stability

7: Metal Alkyls and Metal Hydrides

- 7.1: Transition Metal Alkyl Complexes
- 7.2: Metal Hydrides

8: Carbonyls and Phosphine Complexes

- 8.1: Metal Carbonyls
- 8.2: Metal Phosphines

9: Complexes of π -bound Ligands

- 9.1: Metal Alkene Complexes
- 9.2: Metal Allyl and Diene Complexes
- 9.3: Metal Cyclopentadienyl Complexes

10: Reaction Mechanisms

- 10.1: Oxidative Addition and Reductive Elimination
- 10.2: Insertion and Elimination Reactions
- 10.3: Nucleophilic and Electrophilic Addition and Abstraction

11: Applications

- 11.1: Homogeneous Catalysis - I
- 11.2: Homogeneous Catalysis - II

12: Physical Methods in Organometallic Chemistry

- 12.1: Characterization of Organometallic Complexes

13: Multiply-Bonded Ligands

- 13.1: Metal-Carbenes
- 13.2: Metal-Carbynes

14: Metathesis

- 14.1: Catalytic Applications of Organometallic Compounds- Alkene Metathesis
- 14.2: Credits

[Index](#)

[Index](#)

[Glossary](#)

[Detailed Licensing](#)