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Autore	Leeuwen P. W. N. M. van (Piet W. N. M.)
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Nota di contenuto	Homogeneous Catalysts: Activity - Stability - Deactivation; Contents; Preface; 1 Elementary Steps; 1.1 Introduction; 1.2 Metal Deposition; 1.2.1 Ligand Loss; 1.2.2 Loss of H+, Reductive Elimination of HX; 1.2.3 Reductive Elimination of C-, N-, O-Donor Fragments; 1.2.4 Metallic Nanoparticles; 1.3 Ligand Decomposition by Oxidation; 1.3.1 General; 1.3.2 Oxidation; 1.3.2.1 Catalysis Using O <sub>2</sub> ; 1.3.2.2 Catalysis Using Hydroperoxides; 1.4 Phosphines; 1.4.1 Introduction; 1.4.2 Oxidation of Phosphines; 1.4.3 Oxidative Addition of a P-C Bond to a Low-Valent Metal 1.4.4 Nucleophilic Attack at Phosphorus 1.4.5 Aryl Exchange Via Phosponium Intermediates; 1.4.6 Aryl Exchange Via Metallophosphoranes; 1.5 Phosphites; 1.6 Imines and Pyridines; 1.7 Carbenes; 1.7.1 Introduction to NHCs as Ligands; 1.7.2 Reductive Elimination of NHCs; 1.7.3 Carbene Decomposition in Metathesis Catalysts; 1.8 Reactions of Metal-Carbon and Metal-Hydride Bonds; 1.8.1 Reactions with Protic Reagents; 1.8.2 Reactions of Zirconium and

Titanium Alkyl Catalysts; 1.9 Reactions Blocking the Active Sites; 1.9.1 Polar Impurities; 1.9.2 Dimer Formation; 1.9.3 Ligand Metallation; References

2 Early Transition Metal Catalysts for Olefin Polymerization 2.1 Ziegler-Natta Catalysts; 2.1.1 Introduction; 2.1.2 Effect of Catalyst Poisons; 2.1.3  $TiCl_3$  Catalysts; 2.1.4  $MgCl_2$ -supported Catalysts; 2.1.4.1  $MgCl_2/TiCl_4$ /Ethyl Benzoate Catalysts; 2.1.4.2  $MgCl_2/TiCl_4$ /Diester Catalysts; 2.1.4.3  $MgCl_2/TiCl_4$ /Diether Catalysts; 2.1.5 Ethene Polymerization; 2.2 Metallocenes; 2.2.1 Introduction; 2.2.2 Metallocene/MAO Systems; 2.2.3 Metallocene/Borate Systems; 2.3 Other Single-Center Catalysts; 2.3.1 Constrained Geometry and Half-Sandwich Complexes; 2.3.2 Octahedral Complexes 2.3.3 Diamide and Other Complexes 2.4 Vanadium-Based Catalysts; 2.5 Chromium-Based Catalysts; 2.6 Conclusions; References; 3 Late Transition Metal Catalysts for Olefin Polymerization; 3.1 Nickel- and Palladium-based Catalysts; 3.1.1 Diimine Complexes; 3.1.2 Neutral Nickel(II) Complexes; 3.1.3 Other Nickel(II) and Palladium(II) Complexes; 3.2 Iron- and Cobalt-based Catalysts; 3.2.1 Bis(imino) Pyridyl Complexes; 3.3 Conclusions; References; 4 Effects of Immobilization of Catalysts for Olefin Polymerization; 4.1 Introduction; 4.2 Metallocenes and Related Complexes 4.2.1 Immobilized MAO/Metallocene Systems 4.2.2 Immobilized Borane and Borate Activators; 4.2.3 Superacidic Supports; 4.2.4  $MgCl_2$ -Supported Systems; 4.3 Other Titanium and Zirconium Complexes; 4.3.1 Constrained Geometry Complexes; 4.3.2 Octahedral Complexes; 4.4 Vanadium Complexes; 4.5 Chromium Complexes; 4.6 Nickel Complexes; 4.7 Iron Complexes; 4.8 Conclusions; References; 5 Dormant Species in Transition Metal-Catalyzed Olefin Polymerization; 5.1 Introduction; 5.2 Ziegler-Natta Catalysts; 5.2.1 Ethene Polymerization; 5.2.2 Propene Polymerization 5.3 Metallocenes and Related Early Transition Metal Catalysts

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Sommario/riassunto

This first book to illuminate this important aspect of chemical synthesis improves the lifetime of catalysts, thus reducing material and saving energy, costs and waste. The international panel of expert authors describes the studies that have been conducted concerning the way homogeneous catalysts decompose, and the differences between homogeneous and heterogeneous catalysts. The result is a ready reference for organic, catalytic, polymer and complex chemists, as well as those working in industry and with/on organometallics

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