

<<均相催化>>

图书基本信息

书名：<<均相催化>>

13位ISBN编号：9787030211859

10位ISBN编号：7030211855

出版时间：2008-3

出版时间：科学出版社

作者：Piet W.N.M.Van Leeuwen

页数：407

字数：630000

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

<<均相催化>>

内容概要

过渡金属化合物均相催化领域近年来发展非常迅速，工业界、学术界纷纷报道发现了众多的奇妙催化剂。

本书基于作者在教学及工业实践方面广泛的经验，探讨了许多新的和旧的重要反应。

每章均以基础知识开始，以最新的内容结束。

本书侧重于概念，但也列举了许多实验室合成有机化学品的关键工业流程和应用流程。

全书涵盖精细化学品，大宗化学品，聚合物，高技术聚合物，药品，也包括重要的技巧和反应类型等。

同时还介绍了一些反应过程方案、环境问题和安全问题。

本书可供催化专业高年级本科生、研究生以及研究人员参考使用。

<<均相催化>>

书籍目录

Preface Acknowledgements

1. INTRODUCTION 1.1 CATALYSIS 1.2 HOMOGENEOUS CATALYSIS 1.3 HISTORICAL NOTES ON HOMOGENEOUS CATALYSIS 1.4 CHARACTERISATION OF THE CATALYST 1.5 LIGAND EFFECTS 1.5.1 Phosphines and phosphites: electronic effects 1.5.2 Phosphines and phosphites: steric effects 1.5.3 Linear Free Energy Relationships 1.5.4 Phosphines and phosphites: bite angle effects 1.6 LIGANDS ACCORDING TO DONOR ATOMS 1.6.1 Anionic and neutral hydrocarbyl groups 1.6.2 Alkoxy and imido groups as anionic ligands 1.6.3 Amines, imines, oxazolines and related ligands 1.6.4 Phosphines, phosphites, phosphorus amides, phospholes and related ligands 1.6.5 Carbenes, carbon monoxide 1.6.6 Common anions

2. ELEMENTARY STEPS 2.1 CREATION OF A "VACANT" SITE AND CO-ORDINATION OF THE SUBSTRATE 2.2 INSERTION VERSUS MIGRATION 2.3 π -ELIMINATION AND DE-INSERTION 2.4 OXIDATIVE ADDITION 2.5 REDUCTIVE ELIMINATION 2.6 σ -ELIMINATION REACTIONS 2.7 CYCLOADDITION REACTIONS INVOLVING A METAL 2.8 ACTIVATION OF A SUBSTRATE TOWARD NUCLEOPHILIC ATTACK 2.8.1 Alkenes 2.8.2 Alkynes 2.8.3 Carbon monoxide 2.8.4 Other substrates 2.9 α -BOND METATHESIS 2.10 DIHYDROGEN ACTIVATION 2.11 ACTIVATION BY LEWIS ACIDS 2.11.1 Diels-Alder additions 2.11.2 Epoxidation 2.11.3 Ester condensation 2.12 CARBON-TO-PHOSPHORUS BOND BREAKING 2.13 CARBON-TO-SULFUR BOND BREAKING 2.14 RADICAL REACTIONS

3. KINETICS 3.1 INTRODUCTION 3.2 TWO-STEP REACTION SCHEME 3.3 SIMPLIFICATIONS OF THE RATE EQUATION AND THE RATE DETERMINING STEP 3.4 DETERMINING THE SELECTIVITY 3.5 COLLECTION OF RATE DATA 3.6 IRREGULARITIES IN CATALYSIS

4. HYDROGENATION 4.1 WILKINSON'S CATALYST 4.2 ASYMMETRIC HYDROGENATION 4.2.1 Introduction 4.2.2 Cinnamic acid derivatives 4.2.3 Chloride versus weakly coordinating anions; alkylphosphines versus arylphosphines 4.2.4 Incubation times 4.3 OVERVIEW OF CHIRAL BIDENTATE LIGANDS 4.3.1 DUPHOS 4.3.2 BINAP catalysis 4.3.3 Chiral ferrocene based ligands 4.4 MONODENTATE LIGANDS 4.5 NON-LINEAR EFFECTS 4.6 HYDROGEN TRANSFER

5. ISOMERISATION 5.1 HYDROGEN SHIFTS 5.2 ASYMMETRIC ISOMERISATION 5.3 OXYGEN SHIFTS

6. CARBONYLATION OF METHANOL AND METHYL ACETATE 6.1 ACETIC ACID 6.2 PROCESS SCHEME MONSANTO PROCESS 6.3 ACETIC ANHYDRIDE 6.4 OTHER SYSTEMS 6.4.1 Higher alcohols 6.4.2 Phosphine-modified rhodium catalysts 6.4.3 Other metals

7. COBALT CATALYSED HYDROFORMYLATION 7.1 INTRODUCTION 7.2 THERMODYNAMICS 7.3 COBALT CATALYSED PROCESSES 7.4 COBALT CATALYSED PROCESSES FOR HIGHER ALKENES 7.5 KUHLMANN COBALT HYDROFORMYLATION PROCESS 7.6 PHOSPHINE MODIFIED COBALT CATALYSTS: THE SHELL PROCESS 7.7 COBALT CARBONYL PHOSPHINE COMPLEXES 7.7.1 Carbonyl species 7.7.2 Phosphine derivatives

8. RHODIUM CATALYSED HYDROFORMYLATION 8.1 INTRODUCTION 8.2 TRIPHENYLPHOSPHINE AS THE LIGAND 8.2.1 The mechanism 8.2.2 Ligand effects and kinetics 8.2.3 Regioselectivity 8.2.4 Process description, rhodium-tpp 8.2.5 Two-phase process, tppts: Ruhrchemie/Rhone-Poulenc 8.2.6 One-phase catalysis, two-phase separation 8.3 DIPHOSPHINES AS LIGANDS 8.3.1 Xantphos ligands: tuneable bite angles 8.4 PHOSPHITES AS LIGANDS 8.4.1 Electronic effects 8.4.2 Phosphites: steric effects 8.5 DIPHOSPHITES 8.6 ASYMMETRIC HYDROFORMYLATION 8.6.1 Rhodium catalysts: diphosphites 8.6.2 Rhodium catalysts: phosphine-phosphite ligands

9. ALKENE OLIGOMERISATION 9.1 INTRODUCTION 9.2 SHELL-HIGHER-OLEFINS-PROCESS 9.2.1 Oligomerisation 9.2.2 Separation 9.2.3 Purification, isomerisation, and metathesis 9.2.4 New catalysts 9.3 ETHENE TRIMERISATION 9.4 OTHER ALKENE OLIGOMERISATION REACTIONS

10. PROPENE POLYMERISATION 10.1 INTRODUCTION TO POLYMER CHEMISTRY 10.1.1 Introduction to Ziegler Natta polymerisation 10.1.2 History of homogeneous catalysts 10.2 MECHANISTIC INVESTIGATIONS 10.2.1 Chain-end control: syndiotactic polymers 10.2.2 Chain-end control: isotactic polymers 10.3 ANALYSIS BY ^{13}C NMR

SPECTROSCOPY 10.3.1 Introduction 10.3.2 Chain-end control 10.3.3 Site control mechanism 10.4 THE DEVELOPMENT OF METALLOCENE CATALYSTS 10.4.1 Site control: isotactic polymers 10.4.2 Site control: syndiotactic polymers 10.4.3 Double stereoselection: chain-end and site control 10.5 AGOSTIC INTERACTIONS 10.6 THE EFFECT OF DIHYDROGEN 10.7 FURTHER WORK USING PROPENE AND OTHER ALKENES 10.8 NON-METALLOCENE ETM CATALYSTS 10.9 LATE TRANSITION METAL CATALYSTS 11. HYDROCYANATION OF ALKENES 11.1 THE ADIPONITRILE PROCESS 11.2 LIGAND EFFECTS 12. PALLADIUM CATALYSED CARBONYLATIONS OF ALKENES 12.1 INTRODUCTION 12.2 POLYKETONE 12.2.1 Background and history 12.2.2 Elementary steps: initiation 12.2.3 Elementary steps: migration reactions 12.2.4 Elementary steps: chain termination, chain transfer 12.2.5 Elementary steps: ester formation as chain termination 12.3 LIGAND EFFECTS ON CHAIN LENGTH 12.3.1 Polymers 12.3.2 Ligand effects on chain length: Propanoate 12.3.3 Ligand effects on chain length: Oligomers 12.4 ETHENE/PROPENE/CO TERPOLYMERS 12.5 STEREOSELECTIVE STYRENE/CO COPOLYMERS 13. PALLADIUM CATALYSED CROSS-COUPPLING REACTIONS 13.1 INTRODUCTION 13.2 ALLYLIC ALKYLATION 13.3 HECK REACTION 13.4 CROSS-COUPPLING REACTION 13.5 HETEROATOM-CARBON BOND FORMATION 13.6 SUZUKI REACTION 14. EPOXIDATION 14.1 ETHENE AND PROPENE OXIDE 14.2 ASYMMETRIC EPOXIDATION 14.2.1 Introduction 14.2.2 Katsuki-Sharpless asymmetric epoxidation 14.2.3 The Jacobsen asymmetric epoxidation 14.3 ASYMMETRIC HYDROXYLATION OF ALKENES WITH OSMIUM TETROXIDE 14.3.1 Stoichiometric reactions 14.3.2 Catalytic reactions 14.4 JACOBSEN ASYMMETRIC RING-OPENING OF EPOXIDES 14.5 EPOXIDATIONS WITH DIOXYGEN 15. OXIDATION WITH DIOXYGEN 15.1 INTRODUCTION 15.2 THE WACKIER REACTION 15.3 WACKIER TYPE REACTIONS 15.4 TEREPHTHALIC ACID 15.5 PPO 16. ALKENE METATHESIS 16.1 INTRODUCTION 16.2 THE MECHANISM 16.3 REACTION OVERVIEW 16.4 WELL-CHARACTERISED TUNGSTEN AND MOLYBDENUM CATALYSTS 16.5 RUTHENIUM CATALYSTS 16.6 STEREOCHEMISTRY 16.7 CATALYST DECOMPOSITION 16.8 ALKYNES 16.9 INDUSTRIAL APPLICATIONS 17. ENANTIOSELECTIVE CYCLOPROPANATION 17.1 INTRODUCTION 17.2 COPPER CATALYSTS 17.3 RHODIUM CATALYSTS 17.3.1 Introduction 17.3.2 Examples of rhodium catalysts 18. HYDROSILYLATION 18.1 INTRODUCTION 18.2 PLATINUM CATALYSTS 18.3 ASYMMETRIC PALLADIUM CATALYSTS 18.4 RHODIUM CATALYSTS FOR ASYMMETRIC KETONE REDUCTION 19. C-H FUNCTIONALISATION 19.1 INTRODUCTION 19.2 ELECTRON-RICH METALS 19.3 HYDROGEN TRANSFER REACTIONS OF ALKANES 19.4 BORYLATION OF ALKANES 19.5 THE MURAI REACTION 19.6 CATALYTIC α -BOND METATHESIS 19.7 ELECTROPHILIC CATALYSTS SUBJECT INDEX

<<均相催化>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>