

1. Record Nr.	UNINA9910830285703321
Titolo	Carbon monoxide in organic synthesis : carbonylation chemistry // edited by Bartolo Gabriele
Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH, , [2022] ©2022
ISBN	3-527-82935-0 3-527-82933-4
Descrizione fisica	1 online resource (431 pages)
Disciplina	547.2
Soggetti	Carbonyl compounds - Synthesis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- Preface -- Chapter 1 Introduction: Carbon Monoxide as Synthon in Organic Synthesis -- References -- Part I Carbonylations Promoted by First Row Transition Metal Catalysts -- Chapter 2 CobaltCatalyzed Carbonylations -- 2.1 Introduction -- 2.2 Carbon Monoxide and Its Surrogates -- 2.3 Hydroformylation of Alkenes -- 2.4 Carbonylation of Alkynes by the Pauson-Khand [2+2+1] Reaction -- 2.5 Carbonylation of Methanol -- 2.6 Carbonylation of Heterocycles -- 2.7 Carbonylation of Alkyl and Aryl Halides -- 2.8 C H Bond Carbonylations -- 2.9 Miscellaneous Co Catalyzed Carbonylations -- 2.10 Summary and Conclusions -- References -- Chapter 3 NickelCatalyzed Carbonylations -- 3.1 Introduction -- 3.2 Nickel Halides in Carbonylation Reaction -- 3.3 Ni Chelates as Precatalysts -- 3.4 Nanoparticles as Active Catalysts -- 3.5 Dinickel Complexes as Catalysts -- 3.6 Ni/AC as a Promising Heterogeneous Catalyst -- 3.7 Use of CO Surrogates with Nickel Catalysts -- 3.7.1 Metal Carbonyls as CO Surrogates -- 3.7.2 Formates as CO Surrogates -- 3.7.3 Acid or Acid Chlorides as CO Surrogates -- 3.8 Other Prominent Roles of Nickel in Carbonylation -- 3.9 Conclusion and Future Outlook -- References -- Chapter 4 Carbonylations Catalyzed by Other First Row TransitionMetal Catalysts (Manganese, Iron, Copper) -- 4.1 Introduction -- 4.2 Synthesis of Ketones -- 4.3 Synthesis of Esters -- 4.4 Synthesis of Amides -- 4.5 Synthesis of

Other Products -- 4.6 Summary and Conclusions -- References -- Part II Carbonylations Promoted by Second Row Transition Metal Catalysts -- Chapter 5 RutheniumCatalyzed Carbonylations -- 5.1 Introduction -- 5.2 CH Activation of NitrogenContaining Arene Derivatives -- 5.3 RutheniumCatalyzed Carbonylations of Olefins and Nitroarenes -- 5.3.1 RutheniumCatalyzed Hydroformylations. 5.3.2 RutheniumCatalyzed Alkoxycarbonylation of Olefins -- 5.3.3 Carbonylation of Nitroarenes -- 5.4 RutheniumCatalyzed Carbonylation of Amines and Alcohols -- 5.5 RutheniumCatalyzed Cyclocarbonylations -- 5.6 RutheniumCatalyzed Reactions Using Syngas -- 5.6.1 Fischer-Tropsch Synthesis -- 5.6.2 Synthesis of Oxo Products from Syngas -- 5.7 Synthesis of Oxo Products from H₂ and CO₂ -- 5.8 Conclusions -- References -- Chapter 6 Rhodium Catalyzed Carbonylations -- 6.1 Introduction -- 6.2 Hydroformylation -- 6.2.1 Catalyst Recovery -- 6.2.2 Aqueous Biphase Hydroformylation -- 6.2.3 Enantioselective Hydroformylation -- 6.2.4 Tandem Hydroformylation -- 6.2.5 Syngas Surrogates -- 6.3 Carbonylation -- 6.4 Some Relevant Patents and Patent Applications (2015-2020) -- 6.4.1 Hydroformylation -- 6.4.2 Preparation of Acetic Acid and Similar Compounds and Derivatives -- 6.4.3 Alcohols -- 6.5 Summary and Conclusions -- References -- Chapter 7 Palladium(0)Catalyzed Carbonylations -- 7.1 Introduction -- 7.2 Palladium(0)Catalyzed Carbonylative Synthesis of Ester Derivatives -- 7.2.1 Palladium(0) Catalyzed Carbonylative Synthesis of Ester Derivatives from Aryl Halides -- 7.2.2 Palladium(0)Catalyzed Carbonylative Synthesis of Ester Derivatives from Alkynes -- 7.2.3 Palladium(0)Catalyzed Carbonylative Synthesis of Ester Derivatives Using Benzyl Amines -- 7.3 Palladium(0) Catalyzed Carbonylative Synthesis of Amide Derivatives -- 7.3.1 Palladium(0)Catalyzed Carbonylative Synthesis of Lactams -- 7.3.2 Palladium(0)Catalyzed Carbonylative Synthesis of Five, Six, Seven Membered Cyclic Amides -- 7.3.3 Palladium(0)Catalyzed Carbonylative Synthesis of Benzamide Derivatives -- 7.4 Palladium(0)Catalyzed Carbonylative Synthesis of Ketone Derivatives -- 7.4.1 Palladium(0) Catalyzed Carbonylative Synthesis of Ketone Derivatives from Aryl Halides. 7.4.2 Palladium(0)Catalyzed Carbonylative Synthesis of Ketone Derivatives from Other Substrates -- 7.5 Palladium(0)Catalyzed Carbonylative Synthesis of ,Alkynyl Ketones Derivatives -- 7.6 Palladium(0)Catalyzed Carbonylative Synthesis of Other Carbonyl Compounds -- 7.7 Summary and Conclusions -- References -- Chapter 8 Palladium(II)Catalyzed Carbonylations -- 8.1 Introduction -- 8.2 Palladium(II)Catalyzed Carbonylation of Alkanes and Saturated C H Bonds -- 8.3 Palladium(II)Catalyzed Carbonylation of Arenes and Heteroarenes -- 8.4 Palladium(II)Catalyzed Carbonylation of Alkenes -- 8.4.1 Palladium(II)Catalyzed Carbonylation of Unfunctionalized Alkenes, Dienes, and Allenes -- 8.4.2 Palladium(II)Catalyzed Carbonylation of Functionalized Alkenes and Allenes -- 8.5 Palladium (II)Catalyzed Carbonylation of Alkynes -- 8.5.1 Palladium(II)Catalyzed Carbonylation of Unfunctionalized Alkynes -- 8.5.2 Palladium(II) Catalyzed Carbonylation of Functionalized Alkynes -- 8.6 Palladium(II) Catalyzed Carbonylation of Other Substrates -- 8.7 Summary and Conclusions -- References -- Chapter 9 Carbonylations Catalyzed by Other SecondRow Transition Metal Catalysts -- 9.1 Introduction -- 9.2 Zirconium Compounds as Carbonylation Catalysts -- 9.2.1 Carbonylation with Carbon Monoxide on SulfatedDoped Zirconia as the Solid Acid Catalyst -- 9.2.2 Carbonylation of Zirconocene Complexes -- 9.3 Silver Compounds in Carbonylation Reactions -- 9.3.1 Koch Type Reactions in the Presence of Silver Carbonyl Ion Catalyst -- 9.3.2

KochType Reactions in the Presence of Silver Lewis Acids under CO Atmosphere -- 9.3.3 Carbonylative Coupling Reactions Promoted by Metal-Silver Bimetallic Catalysts -- 9.4 Molybdenum Compounds in Carbonylation Reactions -- 9.4.1 Formal Carbonylation Processes: Carbonylation of Ethylene and Methanol.
9.4.2 Molybdenum Carbonyl Complexes as Catalysts and CO Source in Intermolecular Carbonylation Coupling Reactions of Aryl or Alkenyl Halides -- 9.4.3 Molybdenum Carbonyl Complexes as Both Catalysts and CO Source in Intramolecular Carbonylation Coupling Reactions -- 9.4.4 MetalCatalyzed Coupling Procedures Using Molybdenum as the CO Source -- 9.4.4.1 Intermolecular CrossCoupling Procedures -- 9.4.4.2 Cascade and Intramolecular CrossCoupling Procedures -- 9.4.4.3 Carbonylative CrossCoupling in the Presence of Transmetalation Partners -- 9.5 Summary and Conclusions -- References -- Part III Miscellaneous Carbonylation Reactions -- Chapter 10 Carbonylations Promoted by ThirdRow Transition Metal Catalysts -- 10.1 Introduction -- 10.2 Methanol Carbonylation -- 10.2.1 Acetic Acid Production -- 10.2.2 Process Considerations and Mechanism for Rh Catalyst -- 10.2.3 Iridium Catalysts -- 10.2.3.1 Mechanism for Iridium Catalyst -- 10.2.3.2 Role of Promoters in IridiumCatalyzed Methanol Carbonylation -- 10.2.3.3 Recent Developments -- 10.3 Hydroformylation -- 10.3.1 Iridium Catalysts -- 10.3.2 Platinum Catalysts -- 10.3.3 Osmium Catalysts -- 10.4 Other Carbonylation Reactions -- 10.4.1 Alkoxy Carbonylation of Alkenes -- 10.4.2 Carbonylation Reactions Involving Alkynes -- 10.4.3 Oxidative Carbonylations -- 10.5 Summary and Conclusions -- References -- Chapter 11 Transition MetalFree Carbonylation Processes -- 11.1 Introduction -- 11.2 Transition MetalFree Carbonylation for the Synthesis of Aldehydes and Ketones -- 11.3 Transition MetalFree Carbonylation for the Synthesis of Esters and Lactones -- 11.4 Transition MetalFree Carbonylation for the Synthesis of Amides -- 11.5 Transition MetalFree Carbonylation for the Synthesis of Acids and Anhydrides -- 11.6 Transition MetalFree Carbonylation for the Synthesis of Acyl Chlorides and Alcohols.
11.7 Summary and Conclusions -- References -- Chapter 12 Conclusions and Perspectives -- Index -- EULA.
