

1. Record Nr.	UNINA9910144133003321
Titolo	Preparation of solid catalysts // edited by G. Ertl, H. Knozinger, J. Weitkamp
Pubbl/distr/stampa	Weinheim, [Germany] : , : Wiley-VCH, , 1999 ©1999
ISBN	1-281-76469-8 9786611764692 3-527-61952-6 3-527-62068-0
Descrizione fisica	1 online resource (641 p.)
Disciplina	541.3 541.3/95 541.395
Soggetti	Metal catalysts Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preparation of Solid Catalysts; Contents; 1 Introduction; 2 Developing Industrial Catalysts; 2.1 Properties and Characteristics of Industrial Catalysts; 2.1.1 Activity; 2.1.2 Selectivity; 2.1.3 Stability; 2.1.4 Morphology; 2.1.5 Mechanical Strength; 2.1.6 Thermal Characteristics; 2.1.7 Regenerability; 2.1.8 Reproducibility; 2.1.9 Originality; 2.1.10 Cost; 2.2 The Ideal Catalyst and the Optimum Catalyst; 2.2.1 Catalyst Development; 2.2.2 Devising the First Catalytic Formulas; 2.2.3 Optimization of a Typical Catalytic Formula; 3 Bulk Catalysts and Supports; 3.1 Fused Catalysts 3.1.1 Introduction 3.1.2 Concept of Fused Catalysts; 3.1.3 Thermodynamic and Kinetic Considerations; 3.1.4 Sulfuric Acid Catalyst; 3.1.5 Metallic Glasses; 3.1.6 Mesostructure of Fused Catalyst Materials; 3.2 Skeletal Metal Catalysts; 3.2.1 Introduction; 3.2.2 General Aspects; 3.2.3 Skeletal Nickel Catalysts; 3.2.4 Promoted Skeletal Nickel Catalysts; 3.2.5 Skeletal Cobalt Catalysts; 3.2.6 Skeletal Copper Catalysts; 3.2.7 Promoted Skeletal Copper Catalysts; 3.2.8 Skeletal

Copper-Zinc Catalysts; 3.3 Metallic Glasses; 3.3.1 Introduction; 3.3.2 Preparation; 3.3.3 Chemical and Structural Properties
3.3.4 Metallic Glasses in Catalysis Research
3.3.4.1 Research on Metallic Glasses in As-Quenched State; 3.3.4.2 Metallic Glasses as Precursors to Catalytically Active Materials; 3.3.5 Case Studies: CO Oxidation Catalysts Prepared from Metallic Glasses; 3.3.5.1 Pd/ZrO₂ Catalysts from Amorphous Pd-Zr Alloys; 3.3.5.2 Promoted Gold-Zirconia Catalysts from Ternary Gold-Containing Glassy Alloys; 3.3.6 Factors Influencing Chemical and Structural Properties of Catalytic Materials Derived from Metallic Glasses; 3.3.6.1 Chemical Composition; 3.3.6.2 Chemical and Structural Homogeneity
3.3.6.3 Thermal Stability and Crystallization Behavior
3.3.6.4 Oxidation Behavior; 3.3.6.5 Dissolution of Gases; 3.3.6.6 Segregation Phenomena; 3.3.7 Conclusions and Outlook; 3.4 Precipitation and Coprecipitation; 3.4.1 Introduction; 3.4.2 General Principles Governing Precipitation from Solutions; 3.4.3 Influencing the Properties of the Final Product; 3.4.4 Prototypical Examples of Precipitated Catalysts and Supports; 3.5 Sol-Gel Process; 3.5.1 Introduction; 3.5.2 Important Parameters in Sol-Gel Preparation; 3.5.3 Advantages of Sol-Gel Preparation; 3.5.4 Catalytic Membranes
3.5.5 Other Sol-Gel Materials
3.5.6 Summary; 3.6 Flame Hydrolysis; 3.6.1 Manufacture; 3.6.2 Physicochemical Properties of Fumed Oxides; 3.6.3 Preparation of Formed Supports; 3.7 Solid-state Reactions; 3.7.1 Why Solid-state Reactions?; 3.7.2 Description of Preparative Methods; 3.7.3 Conclusions and Prospects; 3.8 High-Surface Transition Metal Carbides and Nitrides; 3.8.1 General Properties of Transition Metal Carbides and Nitrides; 3.8.2 Thermodynamic Considerations in the Preparation of Carbides and Nitrides; 3.8.3 Survey of Preparative Methods; 3.9 Carbons; 3.9.1 Introduction
3.9.2 Structural Chemistry of Carbon

Sommario/riassunto

Solid catalysts play a fundamental role in all areas between basic research and industrial applications. This book offers a large amount of information about the preparation of solid catalysts. All types of solid catalysts and all important aspects of their preparation are discussed. The highly topical contributions are written by leading experts in disciplines ranging from solid state, interface and solution chemistry to industrial engineering. The straightforward presentation of the material and the comprehensive coverage make this book an essential and indispensable tool for every scientist
