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Título: Catalysis By Gold

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Editorial: **Año:** 2006

Tema: **Edición:** 1ª

Sinopsis **ISBN:** 9781860946585

Gold has traditionally been regarded as inactive as a catalytic metal. However, the advent of nanoparticulate gold on high surface area oxide supports has demonstrated its high catalytic activity in many chemical reactions. Gold is active as a heterogeneous catalyst in both gas and liquid phases, and complexes catalyse reactions homogeneously in solution. Many of the reactions being studied will lead to new application areas for catalysis by gold in pollution control, chemical processing, sensors and fuel cell technology. This book describes the properties of gold, the methods for preparing gold catalysts and ways to characterise and use them effectively in reactions. The reaction mechanisms and reasons for the high activities are discussed and the applications for gold catalysis considered.

Contents:

Introduction to Catalysis

The Physical and Chemical Properties of Gold

Physical Properties and Characterisation of Small Gold Particles

Preparation of Supported Gold Catalysts

Chemisorption of Simple Molecules on Gold

Oxidation of Carbon Monoxide

The Selective Oxidation of Carbon Monoxide

Selective Oxidation

Reactions Involving Hydrogen

The Water-Gas Shift

Reactions of Environmental Importance

Catalysis by Soluble and Supported Gold Compounds

Miscellaneous Reactions Catalysed by Gold

Commercial Applications