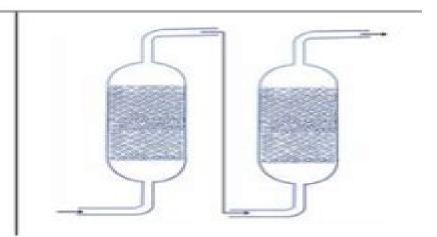


# WATER GAS SHIFT REACTION

RESEARCH, DEVELOPMENTS AND APPLICATIONS

$$CO + H_2O \Leftrightarrow H_2 + CO_2$$
  $\Delta H = -41.2 \text{ KJ/mole}$ 

GUNUGUNURI K. REDDY PANAGIOTIS G. SMIRNIOTIS



# Water Gas Shift Reaction Research Developments And Applications

**Annelies Wilder-Smith** 

# **Water Gas Shift Reaction Research Developments And Applications:**

Water Gas Shift Reaction Panagiotis Smirniotis, Krishna Gunugunuri, 2015-06-11 Water Gas Shift Reaction Research Developments and Applications outlines the importance of hydrogen as a future fuel along with the various hydrogen production methods. The book explains the development of catalysts for Water Gas Shift WGS reaction at different temperatures and steam CO ratios and also discussing the effect of different dopants on the WGS activity of iron oxide and the promotion and inhibition roles of the dopants on the WGS activity of iron oxide are explained. In addition the book describes extensive characterization of modified ferrite catalysts especially with Mossbauer spectroscopy and its advantage in understanding properties of metal doped ferrite catalysts the exact dopant location and its effect on electron hopping capability and WGS activity of Fe redox couple Outlines the importance of the Water Gas Shift Reaction and its application for hydrogen production Provides detailed information on potential catalysts their development and their pros and cons giving the reader insights on how modified ferrite catalysts work at different temperatures and different steam to CO ratios Reviews hydrogen technology its current importance and production methods Presents a clear presentation of the topics with many graphics and tables Offers basic and advanced knowledge of catalysts characterization instrumental techniques

New Developments and Application in Chemical Reaction Engineering Hyun-Ku Rhee,In-Sik Nam,Jong Moon Park,2006-05-10 This Proceedings of APCRE 05 contains the articles that were presented at the 4th Asia Pacific Chemical Reaction Engineering Symposium APCRE 05 held at Gyeongju Korea between June 12 and June 15 2005 with a theme of New Opportunities of Chemical Reaction Engineering in Asia Pacific Region Following the tradition of APCRE Symposia and ISCRE the scientific program encompassed a wide spectrum of topics including not only the traditional areas but also the emerging fields of chemical reaction engineering into which the chemical reaction engineers have successfully spearheaded and made significant contributions in recent years In addition to the 190 papers being accepted six plenary lectures and 11 invited lectures are placed in two separate chapters in the front Provides an overview of new developments and application in chemical reaction engineering Topics include traditional and emerging fields Papers reviewed by experts in the field

Encyclopedia of Interfacial Chemistry, 2018-03-29 Encyclopedia of Interfacial Chemistry Surface Science and Electrochemistry Seven Volume Set summarizes current fundamental knowledge of interfacial chemistry bringing readers the latest developments in the field As the chemical and physical properties and processes at solid and liquid interfaces are the scientific basis of so many technologies which enhance our lives and create new opportunities its important to highlight how these technologies enable the design and optimization of functional materials for heterogeneous and electro catalysts in food production pollution control energy conversion and storage medical applications requiring biocompatibility drug delivery and more This book provides an interdisciplinary view that lies at the intersection of these fields Presents fundamental knowledge of interfacial chemistry surface science and electrochemistry and provides cutting edge research

from academics and practitioners across various fields and global regions Bio-Clean Energy Technologies Volume 2 Pankaj Chowdhary, Soumya Pandit, Namita Khanna, 2022-07-07 This edited book discusses the latest advancements in the area of biofuel development It covers extensive information regarding different aspects and types of biofuels The book provides a road map of the various kinds of biofuels available for consideration It focuses on microbial based power generation applications of nanotechnology in biofuel development advancements in molecular techniques economic and life cycle assessments The book also highlights the commercialization prospects and economics of the various processes and an overview of the life cycle assessment of the various different kinds of biofuels The contributors are experienced professors academicians and scientists associated with renowned laboratories and institutes in India and abroad This book is of interest to teachers researchers biofuel scientists capacity builders and policymakers Also the book serves as additional reading material for undergraduate and graduate students National and international scientists policy makers will also find this to be Encapsulated Catalysts Samahe Sadjadi, 2017-06-08 Encapsulated Catalysts provides valuable information for chemists chemical engineers and materials scientists in this promising area The book describes many kinds of encapsulated catalysts and their applications in chemistry including organic inorganic hybrid and biological systems Unlike other works which discuss traditional supports this useful resource uniquely focuses on extremely important topics such as the encapsulation effects on reactivity and selectivity the difficulty of their separation from reaction mixture and or their sensitivity to reaction conditions and the limit of their industrial applications. In addition the book covers the immobilization of homogenous catalysts on inorganic or organic supports and how it enables the separation of homogenous catalysts as well as the protection or reuse of catalysts Discusses one of the most promising advances in catalysis and recent developments in the area including enzyme mimic catalysts and new nano materials for catalyst encapsulation Provides interdisciplinary coverage of organic inorganic and biological materials for encapsulation of catalysts Describes various types of reactions which can be catalyzed in presence of encapsulated catalysts **Transition Elements: Advances in Research and** Application: 2011 Edition, 2012-01-09 Transition Elements Advances in Research and Application 2011 Edition is a Scholarly Editions eBook that delivers timely authoritative and comprehensive information about Transition Elements The editors have built Transition Elements Advances in Research and Application 2011 Edition on the vast information databases of ScholarlyNews You can expect the information about Transition Elements in this eBook to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant The content of Transition Elements Advances in Research and Application 2011 Edition has been produced by the world's leading scientists engineers analysts research institutions and companies All of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at ScholarlyEditions and available exclusively from us You now have a source you can cite with authority confidence and credibility More information is available at http www ScholarlyEditions com *Gases: Advances in Research* 

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