Handbook Of Industrial Catalysts

Handbook of Heterogeneous Catalysis, 8 Volume Set
Handbook of Combinatorial Chemistry
Industrial Catalysis
Catalyst Handbook, Third Edition
Handbook of Industrial Catalysts
Concepts of Modern Catalysis and Kinetics
Handbook of Spent Hydroprocessing Catalysts
Principles of Catalyst Development
Fundamentals of Industrial Catalytic Processes
Handbook of Industrial Hydrocarbon Processes
Springer Handbook of Advanced Catalyst Characterization
Advanced Catalysis Processes in Petrochemicals and Petroleum Refining: Emerging Research and Opportunities
Handbook of Industrial Chemistry and Biotechnology
Catalyst Handbook
Catalysis in Petrochemical Processes
Structured Catalysts and Reactors

Preparation of Solid Catalysts
Fine Chemicals through Heterogeneous Catalysis
Industrial Catalysis
Handbook of Industrial Polyethylene and Technology
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Catalytic Process Development for Renewable Materials

Phase-Transfer Catalysis
Design of Industrial Catalysts
Industrial Catalysis
Catalyst Handbook
Handbook of Industrial Catalysts

CUNNINGHAM SANAA

Handbook of Heterogeneous Catalysis, 8 Volume Set Springer Nature
This book bridges the gap between theory and practice. It provides fundamental information on heterogeneous catalysis and the practicalities of the catalysts and processes used in producing ammonia, hydrogen and methanol via hydrocarbon steam reforming. It also covers the oxidation reactions in making formaldehyde from methanol, nitric acid from ammonia and sulphuric acid from sulphur dioxide. Designed for use in the chemical industry and by those in teaching, research and the study of industrial catalysts and catalytic processes. Students will also find this book extremely useful for obtaining practical information which is not available in more conventional textbooks.
Handbook of Combinatorial Chemistry Routledge

Substantially revising and updating the classic reference in the field, this handbook offers a valuable overview and myriad details on current chemical processes, products, and practices. No other source offers as much data on the chemistry, engineering, economics, and infrastructure of the industry. The Handbook serves a spectrum of individuals, from those who are directly involved in the chemical industry to others in related industries and activities. It provides not only the underlying science and technology for important industry sectors, but also broad coverage of critical supporting topics. Industrial processes and products can be much enhanced through observing the tenets and applying the methodologies found in chapters on Green Engineering and Chemistry (specifically, biomass conversion), Practical Catalysis, and Environmental Measurements; as well as expanded treatment of Safety, chemistry plant security, and Emergency Preparedness. Understanding these factors allows them to be part of the total process and helps achieve optimum results in, for example, process development, review, and modification. Important topics in the energy field, namely nuclear, coal, natural gas, and petroleum, are covered in individual chapters. Other new chapters include energy conversion, energy storage, emerging nanoscience and technology. Updated sections include more material on biomass conversion, as well as three chapters covering biotechnology topics, namely,

Industrial Biotechnology, Industrial Enzymes, and Industrial Production of Therapeutic Proteins.

Industrial Catalysis Springer Science & Business Media

Including recent advances and historically important catalysts, this book overviews methods for developing and applying polymerization catalysts – dealing with polymerization catalysts that afford commercially acceptable high yields of polymer with respect to catalyst mass or productivity. • Contains the valuable data needed to reproduce syntheses or use the catalyst for new applications • Offers a guide to the design and synthesis of catalysts, and their applications in synthesis of polymers • Includes the information essential for choosing the appropriate reactions to maximize yield of polymer synthesized • Presents new chapters on vanadium catalysts, Ziegler catalysts, laboratory homopolymerization, and copolymerization

Catalyst Handbook, Third Edition John Wiley & Sons

Successful industrial heterogeneous catalysts fulfill several key require ments: in addition to high catalytic activity for the desired reaction, with high selectivity where appropriate, they also have an acceptable commercial life and are rugged enough for transportation and charging into plant reactors. Additional requirements include the need to come online smoothly in a short time and reproducible manufacturing procedures that involve convenient processes at

acceptable cost. The development of heterogeneous catalysts that meet these (often mutually exclusive) demands is far from straightforward, and in addition much of the actual manufacturing tech nology is kept secret for commercial reasons-thus there is no modern text that deals with the whole of this important subject. Principles of Catalyst Development, which deals comprehensively with the design, development, and manufacture of practical heterogeneous catalysts, is therefore especially valuable in meeting the long-standing needs of both industrialists and academics. As one who has worked extensively on a variety of catalyst development problems in both industry and academia, James T. Richardson is well placed to write an authoritative book covering both the theory and the practice of catalyst development. Much of the material contained in this book had its origin in a series of widely acclaimed lectures, attended mainly by industrial researchers, given over many years in the United States and Europe. All those in industry who work with catalysts, both beginners and those of considerable experience, should find this volume an essential guide.

Handbook of Industrial Catalysts CRC Press

Industrial Catalysis: Chemistry and Mechanism is an essential textbook for upper-level undergraduate and graduate students with an interest in the underlying concepts of catalysis, industrial organic chemistry and the

mechanism of catalysis. For undergraduates it provides an introduction to the basic catalytic principles and industrial processes. Graduate students will find that the book gives an in-depth understanding of the mechanism of catalytic surface intermediates and the practice of modern catalysis research. For the post graduate and industrial chemist involved in catalysis research, it is a valuable reference text as a compendium of mechanisms by which major industrial catalytic processes operate. This unique book fills the gap between basic organic chemistry and fundamental chemical principles of catalysis, and is a must read for students and researchers in the field.

Concepts of Modern Catalysis and Kinetics John Wiley & Sons

A complete guide to the most important reduction method in organic synthesis The most comprehensive reference in the field, Handbook of Heterogeneous Catalytic Hydrogenation for Organic Synthesis provides synthetic chemists and chemical engineers in fine chemicals and pharmaceuticals with detailed experimental guidelines for heterogeneous catalytic hydrogenation. Organized by functional groups for ready reference and featuring detailed examples of hundreds of reactions, this handbook covers hydrogenations of alkenes, alkynes, aldehydes and ketones, nitriles, imines, nitro and nitroso compounds, carboxylic acids and esters, and aromatic and heterocyclic compounds. In addition, coverage

includes the preparation of amines by reductive alkylation and the hydrogenolysis of a variety of compounds. Examples of hydrogenation of functional groups and reaction pathways are illustrated with numerous equations and schemes. Practitioners will appreciate the plenitude of experimental details given for most of the reactions selected, including amounts of reagents and catalysts, reaction temperatures, hydrogen pressures, and reaction times. They will also find helpful the more than one hundred tables included throughout the book detailing the effects of key factors governing rate and selectivity, such as compound structure, the nature of catalysts and supports, and the nature of solvents. Researchers will benefit from the introductory chapters covering an array of hydrogenation catalysts, including nickel, cobalt, copper, iron, platinum group metals, rhenium, and other oxide and sulfide catalysts, as well as reactors and reaction conditions.

Handbook of Spent Hydroprocessing Catalysts de Gruyter

With contributions from experts in supported metal catalysis, from both the industry and academia, this book presents the latest developments in characterization and application of supported metals in heterogeneous catalysis. In addition to a thorough and updated coverage of the traditional aspects of heterogeneous catalysis such as preparation, characterization and use in well-established technologies such as Naphtha reforming, the book also

includes emerging areas where supported metal catalysis will make significant contributions in future developments, such as fuel cells and fine chemicals synthesis. The second edition of Supported Metals in Catalysis comes complete with new and updated chapters containing important summaries of research in a rapidly evolving field. Very few other books deal with this highly pertinent subject matter, and as such, it is a must-have for anyone working in the field of heterogeneous catalysis.

Principles of Catalyst Development John Wiley & Sons

This indispensable two-volume handbook covers everything on this hot research field. The first part deals with the synthesis, modification, characterization and application of catalytic active zeolites, while the second focuses on such reaction types as cracking, hydrocracking, isomerization, reforming and other industrially important topics. Edited by a highly experienced and internationally renowned team with chapters written by the "Who's Who" of zeolite research.

Fundamentals of Industrial Catalytic Processes Springer Science & Business Media

Written by authors with great experience in the design & development of catalysts & catalytic processes, this text contains data on catalysts, reactors & process design which will be valuable to the practising development chemist/engineer

Handbook of Industrial Hydrocarbon

Processes Springer
Reflecting the R&D efforts in the field that have resulted in a plethora of novel applications over the past decade, this handbook gives a comprehensive overview of the tangible benefits of nanotechnology in catalysis. By bridging fundamental research and industrial development, it provides a unique perspective on this scientifically and economically important field. While the first three parts are devoted to preparation and characterization of nanocatalysts, the final three provide in-depth insights into their applications in the fine chemicals industry, the energy industry, and for environmental protection, with expert authors reporting on real-life applications that are on the brink of commercialization. Timely reading for catalytic chemists, materials scientists, chemists in industry, and process engineers.
Springer Handbook of Advanced Catalyst Characterization Elsevier
This is a book for developers of catalysts, and for practitioners working in the field of design, operation, and optimization of chemical reactors in which heterogeneous catalysis is performed. It is designed to give a better understanding of the phenomena which can influence catalyst performance. Since two disciplines, chemistry and chemical engineering, meet in catalyst research and development, this book covers the chemical point of view for engineers, and the engineering point of view for chemists. It starts with an introduction explaining selectivity,

activity and effectiveness providing the fundamentals for the newcomer. Catalyst preparation and catalyst testing are also described. A method is introduced that can be used to calculate the effectiveness of catalyst pellets as a function of shape, size, pore size, type of kinetics and diffusion, and temperature and pressure conditions. Optimization of catalysts and troubleshooting are also covered. This is a book without any rilvals because of its practical relevance.

Advanced Catalysis Processes in Petrochemicals and Petroleum Refining: Emerging Research and Opportunities Wiley-VCH

Nowadays, the chemical industry is under increased pressure to develop cleaner production processes and technologies. Much effort is devoted to the development of heterogeneous catalysts and their application in industrial-scale organic synthesis. This handbook concentrates on current attempts, focusing on fine chemical production. With contributions from an impressive array of international experts, this is essential reading for everyone interested in the advances in this field.

Handbook of Industrial Chemistry and Biotechnology Manson Publishing

Co-edited by world-renowned scientists in the field of catalysis, this book contains the cutting-edge in situ and operando spectroscopy characterization techniques operating under reaction conditions to determine a materials' bulk, surface, and solution complex and their applications in the field of catalysis

with emphasis on solid catalysts in powder form since such catalyst are relevant for industrial applications. The handbook covers from widely-used to cutting-edge techniques. The handbook is written for a broad audience of students and professionals who want to pursue the full capabilities available by the current state-of-the-art in characterization to fully understand how their catalysts really operate and guide the rational design of advanced catalysts. Individuals involved in catalysis research will be interested in this handbook because it contains a catalogue of cutting-edge methods employed in characterization of catalysts. These techniques find wide use in applications such as petroleum refining, chemical manufacture, natural gas conversion, pollution control, transportation, power generation, pharmaceuticals and food processing.
fdsfds
Catalyst Handbook John Wiley & Sons
Much has been written about fundamental aspects of catalysis, yet despite their universal applications details concerning commercial catalysts and information about actual operating conditions are not readily available. This book provides up-to-date reviews and references to guide those working on industrial catalysts. It will be an invaluable guide for catalysis researchers in industry and academia, and for students.
Catalysis in Petrochemical Processes World Scientific
Until now, no comprehensive handbook

on industrial biocatalysis has been available. Soliciting chapters on virtually every aspect of biocatalysis from international experts most actively researching the field, the Handbook of Industrial Biocatalysis fills this need. The handbook is divided into three sections based on types of substrates. T

Structured Catalysts and Reactors CRC Press

Green, clean and renewable are the hottest keywords for catalysis and industry. This handbook and ready reference is the first to combine the fields of advanced experimentation and catalytic process development for biobased materials in industry. It describes the entire workflow from idea, approach, research, and process development, right up to commercialization. A large part of the book is devoted to the use of advanced technologies and methodologies like high throughput experimentation, as well as reactor and process design models, with a wide selection of real-life examples included at each stage. The contributions are from authors at leading companies and institutes, providing firsthand information and knowledge that is hard to find elsewhere. This work is aimed at decision makers, engineers and chemists in industry, chemists and engineers working with/on renewables, chemists in the field of catalysis, and chemical engineers.

Preparation of Solid Catalysts Springer

Now in 8 volumes, the completely revised and expanded second edition of this much-cited handbook collates the

knowledge available on heterogeneous catalysis, providing easy-to-find yet comprehensive information. The new edition contains some 80% more material and takes into account the latest developments in the field, making it still the most up-to-date compendium in heterogeneous catalysis. More than 300 leading experts -- a veritable "Who's Who" in catalysis -- contributed to this unrivalled masterpiece, covering all aspects of the subject, from the physico-chemical foundations to large-scale industrial applications. With its straightforward presentation, this is an essential and indispensable tool for every scientist working in this area.
Fine Chemicals through Heterogeneous Catalysis Springer Science & Business Media

Petroleum refining and the petrochemical industry play an important role in the current world economy. They provide the platform to convert basic raw materials into many essential products, ranging from transportation fuels (such as gasoline, jet fuel, diesel, and gas oil) to basic and intermediate materials for petrochemical industries and many other valuable chemical products. Advanced Catalysis Processes in Petrochemicals and Petroleum Refining: Emerging Research and Opportunities is an essential comprehensive research publication that provides knowledge on refining processes that could be integrated by the petrochemical industry and discusses how to integrate refining products with petrochemical industries

through the use of new technologies. Featuring a range of topics such as biofuel production, environmental sustainability, and biorefineries, this book is ideal for engineers, chemists, industry professionals, policymakers, researchers, academicians, and petrochemical companies.

Industrial Catalysis Gulf Professional Publishing

Until now, the literature has offered a rather limited approach to the use of fundamental kinetics and their application to catalytic reactions. Subsequently, this book spans the full range from fundamentals of kinetics and heterogeneous catalysis via modern experimental and theoretical results of model studies to their equivalent large-scale industrial production processes. The result is key knowledge for students at technical universities and professionals already working in industry. '... such an enterprise will be of great value to the community, to professionals as well as graduate and undergraduate students attempting to move into the field of modern catalysis and kinetics. I strongly recommend you publish this book based on the proposal.' - Prof. Dr. G. A. Samorjai, University of California 'Both authors are well respected specialists, with a very long record of original top-quality work and an international reputation. A book from these authors will be considered an authoritative piece of work, I definitely support this project and I am looking forward to use the book when published.' - Prof. Dr. D. E. Resasco,

University of Oklahoma 'I wholly support the proposed project. The authors are very competent young colleagues and there is a real need for such a textbook' - Prof. Dr. G. Ertl, Fritz-Haber-Institut, Max-Planck-Gesellschaft, Berlin

Handbook of Industrial Polyethylene and Technology CRC Press

Much has been written about fundamental aspects of catalysis, yet despite their universal applications details concerning commercial catalysts and information about actual operating conditions are not readily available. This book provides up-to-date reviews and references to guide those working on industrial catalysts. It will be an invaluable guide for catalysis researchers in industry and academia, and for students.

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