Lummus Catofin Process

Reaction Kinetics and the Development of Catalytic ProcessesCatalysisChemical Reactor Technology for Environmentally Safe Reactors and ProductsMetal Oxide Catalysis, 2 Volume SetHandbook of Petrochemical ProcessesIndustrial Organic ChemistryChemical Technologies $and \ \ Processes Hydrocarbon \ \ Chemistry Integrated \ \ Chemical \ \ Processes Chemical \ \ Process$ TechnologyIntroduction to Catalysis and Industrial Catalytic ProcessesHandbook of Commercial CatalystsHandbook of Petrochemicals Production ProcessesFundamentals of Inorganic Membrane Science and TechnologyReactive Separation ProcessesIntroduction to Condensed Matter ChemistryPetrochemical EconomicsChemical Process TechnologyC4-Hydrocarbons and DerivativesLeveraging Synergies Between Refining and Petrochemical Processes G.F. Froment James J Spivey Hugo de Lasa S. David Jackson James G. Speight Klaus Weissermel Katarzyna Staszak George A. Olah Kai Sundmacher Jacob A. Moulijn Robert J. Farrauto Howard F. Rase Robert A. Meyers A.J. Burggraaf Kulprathipanja Jihong Yu Duncan Seddon EduGorilla Prep Experts Joachim Schulze Eberhard Lucke Reaction Kinetics and the Development of Catalytic Processes Catalysis Chemical Reactor Technology for Environmentally Safe Reactors and Products Metal Oxide Catalysis, 2 Volume Set Handbook of Petrochemical Processes Industrial Organic Chemistry Chemical Technologies and Processes Hydrocarbon Chemistry Integrated Chemical Processes Chemical Process Technology Introduction to Catalysis and Industrial Catalytic Processes Handbook of Commercial Catalysts Handbook of Petrochemicals Production Processes Fundamentals of Inorganic Membrane Science and Technology Reactive Separation Processes Introduction to Condensed Matter Chemistry Petrochemical Economics Chemical Process Technology C4-Hydrocarbons and Derivatives Leveraging Synergies Between Refining and Petrochemical Processes G.F. Froment James J Spivey Hugo de Lasa S. David Jackson James G. Speight Klaus Weissermel Katarzyna Staszak George A. Olah Kai Sundmacher Jacob A. Moulijn Robert J. Farrauto Howard F. Rase Robert A. Meyers A.J. Burggraaf Kulprathipanja Jihong Yu Duncan Seddon EduGorilla Prep Experts Joachim Schulze Eberhard Lucke

the symposium reaction kinetics and the development of catalytic processes is the continuation of the very successful international symposium dynamics of surfaces and reaction kinetics in heterogeneous catalysis held in september 1997 in antwerp belgium these proceedings contain a unique series of top level plenary lectures mainly focused on the dynamics of catalytic surfaces the interaction of the reacting molecules with the solid catalyst the elementary steps of reaction pathways and molecular kinetics surface science techniques molecular modeling transient kinetic studies sophisticated and specific reactors are included to a growing extent in the kinetic modeling and the development of catalytic

processes how this is practiced today and how it will evolve in the coming years and what benefit can be expected for a more fundamentally based approach is the aim of the symposium

there is an increasing challenge for chemical industry and research institutions to find cost efficient and environmentally sound methods of converting natural resources into fuels chemicals and energy catalysts are essential to these processes and the catalysis specialist periodical report series serves to highlight major developments in this area this series provides systematic and detailed reviews of topics of interest to scientists and engineers in the catalysis field the coverage includes all major areas of heterogeneous and homogeneous catalysis and also specific applications of catalysis such as nox control kinetics and experimental techniques such as microcalorimetry each chapter is compiled by recognised experts within their specialist fields and provides a summary of the current literature this series will be of interest to all those in academia and industry who need an up to date critical analysis and summary of catalysis research and applications catalysis will be of interest to anyone working in academia and industry that needs an up to date critical analysis and summary of catalysis research and applications specialist periodical reports provide systematic and detailed review coverage in major areas of chemical research compiled by teams of leading experts in their specialist fields this series is designed to help the chemistry community keep current with the latest developments in their field each volume in the series is published either annually or biennially and is a superb reference point for researchers rsc org spr

chemical reactor engineering as a discipline has a central role to play in helping with the development of adequate strategies and technologies that can deal effectively with the concerns of today s society which are increasingly becoming attuned to the environment the current challenge is how to adapt present processes and products to meet more rigorous environmental standards chemical reactor technology for environmentally safe reactors and products addresses these issues in three parts i fuels of the future and changing fuel needs ii alternative sources iii emission control chemical reactor safety and engineering attention is also paid throughout the text to the fundamental technological aspects of reactor engineering and to possible strategies for bridging knowledge gaps

with its two volume structure this handbook and ready reference allows for comprehensive coverage of both characterization and applications while uniform editing throughout ensures that the structure remains consistent the result is an up to date review of metal oxides in catalysis the first volume covers a range of techniques that are used to characterize oxides with each chapter written by an expert in the field volume 2 goes on to cover the use of metal oxides in catalytic reactions for all chemists and engineers working in the field of heterogeneous catalysis

the petrochemical industry is a scientific and engineering field that encompasses the production of a wide range of chemicals and polymers the purpose of this book is not only to provide a follow on to form the later chapters of the highly successful chemistry and technology of petroleum 5th edition but also provides a simplified approach to a very diverse chemical subject dealing with the chemistry and technology of various petroleum and petrochemical process following from the introductory chapters this book provides the readers with a valuable source of information containing insights into petrochemical reactions and products process technology and polymer synthesis provides readers with a valuable source of information containing insights into petrochemical reactions and products process technology and polymer synthesis introduces the reader to the various petrochemical intermediates are generally produced by chemical conversion of primary petrochemicals to form more complicated derivative products the reactions and processes involved in transforming petroleum based hydrocarbons into the chemicals that form the basis of the multi billion dollar petrochemical industry are reviewed and described the book includes information on new process developments for the production of raw materials and intermediates for petrochemicals includes a description of the origin of the raw materials for the petrochemicals industry including an overview of the coal chemicals industry

publisher description

this book is essential reading for scientists and students interested in both organic and inorganic chemical technology the authors cover the production of chemical reagents as well as trends from adjacent fields including biotechnology and process simulation chemical technologies and processes is of interest to chemical engineers materials scientists as well as chemists in both academia and industry

hydrocarbons and their transformations play major roles in chemistry as raw materials and sources of energy diminishing petroleum supplies regulatory problems and environmental concerns constantly challenge chemists to rethink and redesign the industrial applications of hydrocarbons written by nobel prize winner george olah and hydrocarbon expert Árpád molnár the completely revised and expanded second edition of hydrocarbon chemistry provides an unparalleled contemporary assessment of the field presenting basic concepts current research and future applications hydrocarbon chemistry begins by discussing the general aspects of hydrocarbons the separation of hydrocarbons from natural sources and the synthesis from c1 precursors with recent developments for possible future applications each successive chapter deals with a specific type of hydrocarbon transformation the second edition includes a new section on the chemical reduction of carbon dioxide focusing on catalytic ionic electrocatalytic photocatalytic and ezymatic reductions as well as a new chapter on new catalysts and activation methods combinatorial chemistry and environmental chemistry other topics covered include major processes of the petrochemical

industry such as cracking reforming isomerization and alkylation derivation reactions to form carbon heteroatom bonds hydrocarbon oxidations metathesis oligomerization and polymerization of hydrocarbons all chapters have been updated by adding sections on recent developments to review new advances and results essential reading for practicing scientists in industry polymer and catalytic chemists as well as researchers and graduate students hydrocarbon chemistry second edition remains the benchmark text in its field

this is the first book dedicated to the entire field of integrated chemical processes covering process design analysis operation and control of these processes both the editors and authors are internationally recognized experts from different fields in industry and academia and their contributions describe all aspects of intelligent integrations of chemical reactions and physical unit operations such as heat exchange separational operations and mechanical unit operations as a unique feature the book also introduces new concepts for treating different integration concepts on a generalized basis of great value to a broad audience of researchers and engineers from industry and academia

with a focus on actual industrial processes e g the production of light alkenes synthesis gas fine chemicals polyethene it encourages the reader to think out of the box and invent and develop novel unit operations and processes reflecting today s emphasis on sustainability this edition contains new coverage of biomass as an alternative to fossil fuels and process intensification the second edition includes new chapters on process intensification and processes for the conversion of biomass updated and expanded chapters throughout with 35 new material overall text boxes containing case studies and examples from various different industries e g synthesis loop designs sasol i plant kaminsky catalysts production of ibuprofen click chemistry ammonia synthesis fluid catalytic cracking questions throughout to stimulate debate and keep students awake richly illustrated chapters with improved figures and flow diagrams chemical process technology second edition is a comprehensive introduction linking the fundamental theory and concepts to the applied nature of the subject it will be invaluable to students of chemical engineering biotechnology and industrial chemistry as well as practising chemical engineers from reviews of the first edition the authors have blended process technology chemistry and thermodynamics in an elegant manner overall this is a welcome addition to books on chemical technology the chemist impressively wide ranging and comprehensive an excellent textbook for students with a combination of fundamental knowledge and technology chemistry in britain now chemistry world

introduces major catalytic processes including products from the petroleum chemical environmental and alternative energy industries provides an easy to read description of the fundamentals of catalysis and some of the major catalytic industrial processes used today offers a rationale for process designs based on kinetics and thermodynamics alternative energy topics include the hydrogen economy fuels cells bio catalytic enzymes production

of ethanol fuel from corn and biodiesel from vegetable oils problem sets of included with answers available to faculty who use the book review in less than 300 pages it serves as an excellent introduction to these subjects whether for advanced students or those seeking to learn more about these subjects on their own time particularly useful are the succinct summaries throughout the book excellent detail in the table of contents a detailed index key references at the end of each chapter and challenging classroom questions globalcatalysis com may 2016

despite the advances in understanding the phenomena that occur on a catalyst surface much of the successful catalyst development and use continues to be half science and half art the art resides in the practical knowledge of experts in the development and use of commercial catalysts it comes with experience now the background needed to nurture t

this unique reference is the only one stop source for details on licensed petrochemical processes for the major organic chemicals a 200 billion annual market with chapters prepared by some of the largest petrochemical and petroleum companies in the world handbook of petrochemicals production processes provides in depth process detail for commercial evalutation and covers plastics and polymers such as ethylene and polyethylene propylene ehtylbenzene styrene and polystyrenes vinyl chloride and polyvinyl chloride and many others this handbook answers questions on yields unit operations chemical and physical values economics and much more

inorganic membrane science and technology is a new field of membrane separation technology which until recently was dominated by the earlier field of polymer membranes currently the subject is undergoing rapid development and innovation the present book describes the fundamental principles of both synthesis of inorganic membranes and membrane supports and also the associated phenomena of transport and separation in a semi quantitative form features of this book examples are given which illustrate the state of the art in the synthesis of membranes with controlled properties future possibilities and limitations are discussed the reader is provided with references to more extended treatments in the literature potential areas for future innovation are indicated by combining aspects of both the science and technology of inorganic membranes this book serves as a useful source of information for scientists and engineers working in this field it also provides some observations of important investigators who have contributed to the development of this subject

this book summarizes the available information in six known areas of reactive separation reaction distillation reaction extraction reaction absorption reaction adsorption reaction membrane and reaction crystallization

introduction to condensed matter chemistry offers a general view of chemistry from the perspective of condensed matter chemistry analyzing and contrasting chemical reactions in

a more realistic setting than traditional thinking readers will also find discussions on the goals and major scientific questions in condensed matter chemistry and the molecular engineering of functional condensed matter processes and products of chemical reactions should not be determined solely by the structure and composition of these basic species but also by the complex and possibly multilevel structured physical and chemical environment together referred to as their condensed state relevant matters in condensed state should be the main bodies of chemical reactions which is applicable not only to solids and liquids but also to gas molecules as reactions among gas molecules can take place only in the presence of catalysts in specific condensed states or after their state transition under extreme reaction conditions this book provides new insights on the liquid state chemistry definitions aspects and interactions summarizing fundamentals of main chemical reactions from a new perspective helps to establish the new field of condensed matter chemistry highlights the molecular engineering of functional condensed matter focuses on both liquid and solid state chemistry

this compendium gives an overview of the technologies and economics in the production of olefins in the petrochemical industries it highlights the options and costs for producing olefins using different technologies and different feedstocks at a time when the cost of carbon dioxide emissions are set to be included in the production cost industry professionals engineers research scientists and financiers will find this title a valuable resource

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the book treats the c hydrocarbons and their secondary products as a contribution 4 to chemical engineering economics applying this field of teaching and research to the technical processes for making and processing this group of products so important to the chemical industry as early as tpe 1950s the then director of the institute for technical chemistry of the berlin technical university professor herbert kolbel took the initiative in the domain of chemical engineering economics and began systematic studies of project engineering and cost estimation in connection with chemical plants he also started a course on technical chemical processes in 1966 properties production procedures plant equipment and also the uses of technically interesting products are the central features of chemical technology the information is to be found in the large encyclopedias of technical chemistry on the other hand chemical engineering economics deals with all the economic conditions of usage of the raw materials possibilities of utilizing co products and the integration of these products into definite production programmes from the stand point of the chemical and technical fundamentals of the processes further important viewpoints are the costs of

the products taking into consideration important and variable influences on these costs the situation and development of the market for the products and of increasing significance also the ecological global conditions for procuring raw materials and the production and marketing of the particular products

leveraging synergies between refining and petrochemical processes provides a detailed description of the interfaces and connections between crude oil refining and petrochemicals it offers a view of global and regional markets and economic opportunities for synergies between these sectors features shows a global and regional market outlook for crude oil refining and petrochemical sectors explores economic and market opportunities for taking advantage of the synergies between both sectors analyzes the technical challenges and opportunities that come with these synergies gives an outlook and prediction of what companies will be able to achieve in the mid term future provides introductory and explanatory material as well as in depth insight into future technology and market developments this book serves as a reference for professionals in chemical engineering oil and gas engineering and industrial chemistry it aims to help engineers and industry professionals understand the challenges and the potential benefits of developing expansion or optimization projects that may bridge the gap between refining and petrochemicals

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