

Fluid Catalytic Cracking Handbook

Efficient Petrochemical Processes Frank (Xin X.) Zhu, James A. Johnson, David W. Ablin, Gregory A. Ernst. 2019-10-15 A GUIDE TO THE DESIGN, OPERATION, CONTROL, TROUBLESHOOTING, OPTIMIZATION AS WELL AS THE RECENT ADVANCES IN THE FIELD OF PETROCHEMICAL PROCESSES Efficient Petrochemical Processes: Technology, Design and Operation is a guide to the tools and methods for energy optimization and process design. Written by a panel of experts on the topic, the book highlights the application of these methods on petrochemical technology such as the aromatics process unit. The authors describe practical approaches and tools that focus on improving industrial energy efficiency, reducing capital investment, and optimizing yields through better design, operation, and optimization. The text is divided into sections that cover the range of essential topics: petrochemical technology description; process design considerations; reaction and separation design; process integration; process system optimization; types of revamps; equipment assessment; common operating issues; and troubleshooting case analysis. This important book: Provides the basic knowledge related to fundamentals, design, and operation for petrochemical processes Applies process integration techniques and optimization techniques that improve process design and operations in the petrochemical process Provides practical methods and tools for industrial practitioners Puts the focus on improving industrial energy efficiency, reducing capital investment, and optimizing yields Contains information on the most recent advances in the field. Written for managers, engineers, and operators working in process industries as well as university students, Efficient Petrochemical Processes: Technology, Design and Operation explains the most recent advances in the field of petrochemical processes and discusses in detail catalytic and adsorbent materials, reaction and separation mechanisms.

Oil and Gas Production Handbook: An Introduction to Oil and Gas Production Havard Devold. 2013

Advances in Fluid Catalytic Cracking Mario L. Occelli. 2010-11-30 Refiners' efforts to conform to increasingly stringent laws and a preference for fuels derived from renewable sources have mandated changes in fluid cracking catalyst technology. Advances in Fluid Catalytic Cracking: Testing, Characterization, and Environmental Regulations explores recent advances and innovations in this important component of petr

Fluid Catalytic Cracking III Mario L. Occelli. 1994 Discusses the formulation, characterization, microactivity, and pilot-plant testing, and product analysis of fluid cracking catalysts. Examines the use of modern spectroscopic techniques such as infrared spectroscopy, solid-state nuclear magnetic resonance spectroscopy, and X-ray photoelectron spectroscopy for the analysis of FCC catalysts. Presents the first use of atomic force microscopy in the study of FCC catalysts. Studies the impact of environmental laws on the discovery of novel FCC catalysts.

Handbook of Petroleum Product Analysis James G. Speight. 2015-02-02 Introduces the reader to the production of the products in a refinery • Introduces the reader to the types of test methods applied to petroleum products, including the need for specifications • Provides detailed explanations for accurately analyzing and characterizing modern petroleum products • Rewritten to include new and evolving test methods • Updates on the evolving test methods and new test methods as well as the various environmental regulations are presented

Catalysis by Ceria and Related Materials Alessandro Trovarelli, Paolo Fornasiero. 2013 This book follows the 2002 edition of Catalysis by Ceria and Related Materials, which was the first book entirely devoted to ceria and its catalytic properties. In the ten years since the first edition a massive amount of work has been carried out in the field, and ceria has gained a prominent position in catalysis as one of the most valuable material for several applications. This second edition covers fundamental and applied aspects of the latest advances in ceria-based materials with a special focus on structural, redox and catalytic features. Special emphasis is given to nano-engineered and nano-shaped systems which are a key factor in the predictive and rational design of ceria with novel properties. In addition, the book presents recent advances in emerging and traditional large-scale applications of ceria in catalysis, such as the treatment of emissions from mobile sources (including diesel and gasoline engines). The primary readership includes catalysis and material science researchers from academy and industry and postdoctorate and graduate students in chemistry, chemical engineering and physics.

Fluid Catalytic Cracking Mario L. Occelli. 1988

Handbook of Petroleum Processing Steven A. Treese, Peter R. Pujadó, David S. J. Jones. 2015-08-04 This extensively updated second edition of the already valuable reference targets research chemists and engineers who have chosen a career in the complex and essential petroleum industry, as well as other professionals just entering the industry who seek a comprehensive and accessible resource on petroleum processing. The handbook describes and discusses the key components and processes that make up the petroleum refining industry. Beginning with the basics of crude oils and their nature, it continues with the commercial products derived from refining and with related issues concerning their environmental impact. More in depth coverage of many topics previously covered in the first edition, such as hydraulic fracturing or fracking as it is often termed, help ensure this reference remains a relevant and up-to-date resource. At its core is a complete overview of the processes that make up a modern refinery, plus a brief history of the development of processes. Also described in detail are design techniques, operations and in the case of catalytic units, the chemistry of the reaction routes. These discussions are supported by calculation procedures and examples, which enable readers to use today's simulation-software packages. The handbook also covers off-sites and utilities, as well as environmental and safety aspects relevant to the industry. The chapter on refinery planning covers both operational planning and the decision making procedures for new or revamped processes. Major equipment used in the industry is reviewed along with details and examples of the process specifications for each. An extensive glossary and dictionary of the terms and expressions used in petroleum refining, plus appendices supplying data such as converging factors and selected crude oil assays, as well as an example of optimizing a refinery configuration using linear programming are all included to aid the reader. The 2nd edition of the Handbook of Petroleum Processing is an indispensable desk reference for chemists and engineers as well as an essential part of the libraries of universities with a chemical engineering faculty and oil refineries and engineering firms performing support functions or construction.

Thermal and Catalytic Processes in Petroleum Refining Serge Raseev. 2003-02-26 This text examines the thermal and catalytic processes involved in the refining of petroleum including visbreaking, coking, pyrolysis, catalytic cracking, oligomerization, alkylation, hydrofining, hydroisomerization, hydrocracking, and catalytic reforming. It analyzes the thermodynamics, reaction mechanisms, and kinetics of each process, as well as

Fluid Catalytic Cracking Handbook Reza Sadeghbeigi. 1995 This practical guide provides information on the design, operation, and troubleshooting of FCC facilities. ...provides practical information covering all areas of fluid catalytic cracking... (Oil & Gas Journal)

Fluid Catalytic Cracking Handbook Reza Sadeghbeigi. 2000-06-08 Full text engineering e-book.

Handbook of Commercial Catalysts Howard F. Rase. 2016-04-05 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

Fluid Catalytic Cracking J.S. Magee, M.M. Mitchell. 1993-07-23 The primary focus of this book as a whole is on performance - performance of the catalyst, of its surface, of the FCC unit, of the feedstocks employed, of the analytical methods used to characterize the catalysts, and of environmentally directed regulations that govern the production of transportation fuels from petroleum. The emphasis on catalyst performance, particularly

commercial performance, essentially dictated that the chapter authors be experienced industrial catalytic chemists and engineers. However, each author approached the task with a clear-cut obligation to connect the roots of the science of FCC catalysis with the technology. Fluid Catalytic Cracking: Science and Technology has been written for workers in industrial catalysis and academia, including graduate students in chemistry or chemical engineering who are interested in acquiring an overall knowledge of one of the world's most important areas of catalysis. The book is concise, each topic is treated briefly; complete, all aspects of FCC catalysis are covered; and clear, anyone involved in this field will find topics of interest.

Fluid Catalytic Cracking V M.L. Occelli, P. O'Connor. 2001-04-27 Catalyst production for the transformation of crudes into gasoline and other fuel products is a billion dollar/year business and fluid cracking catalysts (FCCs) represent almost half of the refinery catalyst market. During the cracking reactions, the FCC surface is contaminated by metals (Ni, V, Fe, Cu, Na) and by coke deposition. As a result, the catalyst activity and product selectivity is reduced to unacceptable levels thus forcing refiners to replace part of the recirculating equilibrium FCC inventory with fresh FCC to compensate for losses in catalyst performance. About 1,100 tons/day of FCC are used worldwide in over 200 fluid cracking catalyst units (FCCUs). It is for these reasons that refiners' interest in FCC research has remained high through the years almost independently, of crude oil prices. However, recent oil company mergers and the dissolution of research laboratories, have drastically decreased the number of researchers involved in petroleum refining research projects; as a result the emphasis of research has shifted from new materials to process improvements and this trend is clearly reflected in the type of papers contained in this volume. Modern spectroscopic techniques continue to be essential in the understanding of catalyst performance and several chapters in the book describe the use of ^{27}Al , ^{29}Si and ^{13}C NMR to study variation in FCC acidity during aging and coke deposition. In addition several chapters have been dedicated to the modeling of FCC deactivation, and to the understanding of contact times on FCC performance. Refiners efforts to conform with environmental regulations are reflected in chapters dealing with sulfur removal, metals contaminants and olefin generation.

Practical Advances in Petroleum Processing Chang Samuel Hsu, Paul R. Robinson. 2007-01-10 Includes topics not found together in books on petroleum processing: economics, automation, process modeling, online optimization, safety, environmental protection Combines overviews of petroleum composition, refinery processes, process automation, and environmental protection with comprehensive chapters on recent advances in hydroprocessing, FCC, lubricants, hydrogen management Gives diverse perspectives, both geographic and topical, because contributors include experts from eight different countries in North America, Europe and Asia, representing oil companies, universities, catalyst vendors, process licensors, consultants and engineering contractors

Fluid Catalytic Cracking with Zeolite Catalysts Paul B. Venuto, E. Thomas Habib. 1979

Chemical Process Technology Jacob A. Moulijn, Michiel Makkee, Annelies E. van Diepen. 2013-03-21 With a focus on actual industrial processes, e.g. the production of light alkenes, synthesis gas, fine chemicals, polyethylene, 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)

Modeling and Simulation of Catalytic Reactors for Petroleum Refining Jorge Ancheyta. 2011-04-20 Modeling and Simulation of Catalytic Reactors for Petroleum Refining deals with fundamental descriptions of the main conversion processes employed in the petroleum refining industry: catalytic hydrotreating, catalytic reforming, and fluid catalytic cracking. Common approaches for modeling of catalytic reactors for steady-state and dynamic simulations are also described and analyzed. Aspects such as thermodynamics, reaction kinetics, process variables, process scheme, and reactor design are discussed in detail from both research and commercial points of view. Results of simulation with the developed models are compared with those determined at pilot plant scale as well as commercial practice. Kinetics data used in the reactor model are either taken from the literature or obtained under controlled experiments at the laboratory.

Fluid Catalytic Cracking VII: .2011-09-22 Since 1987, the Petroleum Division of the American Chemical Society (ACS) has sponsored at 3 year intervals an international symposium on fluid cracking catalysts (FCC) technology. This volume collects the recent progress of this technology as reported in the papers presented during the 232th National Meeting of the ACS in San Francisco, September 10-14, 2006. Sixty-six years after the introduction of the fluid cracking catalyst process, it remains the main process of gasoline generation for the estimated 237 millions cars on US roads. Catalysts testing and evaluation still remains a subject of interest, debate and controversy. Lambda sweep testing, testing of SO_x, NO_x and combustion promoters have been discussed in details together with catalyst evaluation for atmospheric residues and metal contaminated oils cracking. Of particular interest has been the introduction of novel concept in process design aimed at improving cracked product selectivity such as two-stage risers for better gasoline and olefins production and downer technology for high severity processes. The importance of solid state nuclear magnetic resonance (NMR) in the study of crude oils, catalysts and reaction products are illustrated by several examples. Two contributions describe the use of predictive methods to understand FCC aging and deactivation and personal overviews of the development of SO_x and combustion promoters technology are presented. * Presents findings from the tri-annual international symposium on fluid cracking catalysts (FCC) technology, sponsored by the Petroleum Division of the American Chemical Society (ACS) * Two contributions describe the use of predictive methods to understand FCC aging and deactivation * Personal overviews by the authors of the development of SO_x and combustion promoters technology

Fluid Catalytic Cracking Maurice M. Mitchell. 1993 The primary focus of this book as a whole is on performance - performance of the catalyst, of its surface, of the FCC unit, of the feedstocks employed, of the analytical methods used to characterize the catalysts, and of environmentally directed regulations that govern the production of transportation fuels from petroleum. The emphasis on catalyst performance, particularly commercial performance, essentially dictated that the chapter authors be experienced industrial catalytic chemists and engineers. However, each author approached the task with a clear-cut obligation to connect the roots of the science of FCC catalysis with the technology. Fluid Catalytic Cracking : Science and Technology has been written for workers in industrial catalysis and academia, including graduate students in chemistry or chemical engineering who are interested in acquiring an overall knowledge of one of the world's most important areas of catalysis. The book is concise, each topic is treated briefly; complete, all aspects of FCC catalysis are covered; and clear, anyone involved in this field will find topics of interest.--[Source inconnue].

Corrosion Inhibitors in the Oil and Gas Industry Viswanathan S. Saji, Saviour A. Umoren. 2020-02-10 Provides comprehensive coverage of corrosion inhibitors in the oil and gas industries Considering the high importance of corrosion inhibitor development for the oil and gas sectors, this book provides a thorough overview of the most recent advancements in this field. It systematically addresses corrosion inhibitors for various applications in the oil and gas value chain, as well as the fundamentals of corrosion inhibition and interference of inhibitors with co-additives. Corrosion Inhibitors in the Oil and Gas Industries is presented in three parts. The first part on Fundamentals and Approaches focuses on principles and processes in the oil and gas industry, the types of corrosion encountered and their control methods, environmental factors affecting

inhibition, material selection strategies, and economic aspects of corrosion. The second part on Choice of Inhibitors examines corrosion inhibitors for acidizing processes, inhibitors for sweet and sour corrosion, inhibitors in refinery operations, high-temperature corrosion inhibitors, inhibitors for challenging corrosive environments, inhibitors for microbiologically influenced corrosion, polymeric inhibitors, vapor phase inhibitors, and smart controlled release inhibitor systems. The last part on Interaction with Co-additives looks at industrial co-additives and their interference with corrosion inhibitors such as antiscalants, hydrate inhibitors, and sulfide scavengers. -Presents a well-structured and systematic overview of the fundamentals and factors affecting corrosion -Acts as a handy reference tool for scientists and engineers working with corrosion inhibitors for the oil and gas industries -Collectively presents all the information available on the development and application of corrosion inhibitors for the oil and gas industries -Offers a unique and specific focus on the oil and gas industries Corrosion Inhibitors in the Oil and Gas Industries is an excellent resource for scientists in industry as well as in academia working in the field of corrosion protection for the oil and gas sectors, and will appeal to materials scientists, electrochemists, chemists, and chemical engineers.

Essentials of Fluidization Technology John R. Grace, Xiaotao Bi, Naoko Ellis. 2020-03-11 A concise and clear treatment of the fundamentals of fluidization, with a view to its applications in the process and energy industries.

Fluid Catalytic Cracking . The National Inventors Hall of Fame in Akron, Ohio, profiles the American inventors Donald L. Campbell (b.1904), Homer Z. Martin (1910-1993), Eger V. Murphree (1898-1962), and Charles W. Tyson (1900-1977), who developed the Fluid Cat Cracking Process. The process revolutionized the petroleum industry by more efficiently transforming higher boiling oils into lighter, usable products. Portraits of the inventors are available.

Springer Handbook of Petroleum Technology Chang Samuel Hsu, Paul R. Robinson. 2017-12-20 This handbook provides a comprehensive but concise reference resource for the vast field of petroleum technology. Built on the successful book *Practical Advances in Petroleum Processing* published in 2006, it has been extensively revised and expanded to include upstream technologies. The book is divided into four parts: The first part on petroleum characterization offers an in-depth review of the chemical composition and physical properties of petroleum, which determine the possible uses and the quality of the products. The second part provides a brief overview of petroleum geology and upstream practices. The third part exhaustively discusses established and emerging refining technologies from a practical perspective, while the final part describes the production of various refining products, including fuels and lubricants, as well as petrochemicals, such as olefins and polymers. It also covers process automation and real-time refinery-wide process optimization. Two key chapters provide an integrated view of petroleum technology, including environmental and safety issues. Written by international experts from academia, industry and research institutions, including integrated oil companies, catalyst suppliers, licensors, and consultants, it is an invaluable resource for researchers and graduate students as well as practitioners and professionals.

Fluid Catalytic Cracking Handbook Gaurav Vashishit. 2015-08 This is providing practical information and tools that engineers can use to maximize the profitability and reliability of their fluid catalytic cracking operations. The updated chapters and new content deliver expertise and know-how to an industry that faces significant cost cutting in capital expenditure and R&D, along with the retirement of technical specialists who are taking existing knowledge out of the industry with them. This FCC Handbook provides a valuable easy-to-understand resource for both experienced and inexperienced engineers and anyone else associated with the FCC process. Fluid catalytic cracking (FCC) is one of the most important conversion processes used in petroleum refineries. It is widely used to convert the high-boiling, high-molecular weight hydrocarbon fractions of petroleum crude oils to more valuable gasoline, olefinic gases, and other products.[1][2][3] Cracking of petroleum hydrocarbons was originally done by thermal cracking, which has been almost completely replaced by catalytic cracking because it produces more gasoline with a higher octane rating. It also produces byproduct gases that are more olefinic, and hence more valuable, than those produced by thermal cracking.

Handbook of Fluidization and Fluid-Particle Systems Wen-Ching Yang. 2003-03-19 This reference details particle characterization, dynamics, manufacturing, handling, and processing for the employment of multiphase reactors, as well as procedures in reactor scale-up and design for applications in the chemical, mineral, petroleum, power, cement and pharmaceuticals industries. The authors discuss flow through fixed beds, elutriation and entrainment, gas distributor and plenum design in fluidized beds, effect of internal tubes and baffles, general approaches to reactor design, applications for gasifiers and combustors, dilute phase pneumatic conveying, and applications for chemical production and processing. This is a valuable guide for chemists and engineers to use in their day-to-day work.

Diameter-Transformed Fluidized Bed Youhao Xu, Bona Lu, Mingyuan He, Yujie Tian, Wei Wang. 2020-06-05 This book puts forward the concept of the Diameter-Transformed Fluidized Bed (DTFB): a fluidized bed characterized by the coexistence of multiple flow regimes and reaction zones, achieved by transforming the bed into several sections of different diameters. It reviews fundamental aspects, including computational fluid dynamics simulations and industrial practices in connection with DTFB. In particular, it highlights an example concerning the development of maximizing iso-paraffins (MIP) reactors for regulating complex, fluid catalytic cracking reactions in petroleum refineries. The book is a must-have for understanding how academic and industrial researchers are now collaborating in order to develop novel catalytic processes.

Fluid Catalytic Cracking Handbook Reza Sadeghbeigi. 2000-06-08 This thoroughly updated edition of Fluid Catalytic Cracking Handbook provides practical information on the design, operation, troubleshooting, and optimization of fluid catalytic cracking (FCC) facilities. Based on the author's years of field experience, this expanded, second edition covers the latest technologies to improve the profitability and reliability of the FCC units, and provides several no-to-low-cost practical recommendations. A new chapter supplies valuable recommendations for debottlenecking and optimizing the performance of cat cracker operations.

Guide to Fluid Catalytic Cracking .1993

Chemical Engineering Design Gavin Towler, Ray Sinnott. 2012-01-25 *Chemical Engineering Design, Second Edition*, deals with the application of chemical engineering principles to the design of chemical processes and equipment. Revised throughout, this edition has been specifically developed for the U.S. market. It provides the latest US codes and standards, including API, ASME and ISA design codes and ANSI standards. It contains new discussions of conceptual plant design, flowsheet development, and revamp design; extended coverage of capital cost estimation, process costing, and economics; and new chapters on equipment selection, reactor design, and solids handling processes. A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data, and Excel spreadsheet calculations, plus over 150 Patent References for downloading from the companion website. Extensive instructor resources, including 1170 lecture slides and a fully worked solutions manual are available to adopting instructors. This text is designed for chemical and biochemical engineering students (senior undergraduate year, plus appropriate for capstone design courses where taken, plus graduates) and lecturers/tutors, and professionals in industry (chemical process, biochemical, pharmaceutical, petrochemical sectors). New to this edition: Revised organization into Part I: Process Design, and Part II: Plant Design. The broad themes of Part I are flowsheet development, economic analysis, safety and environmental impact and optimization. Part II contains chapters on equipment design and selection that can be used as supplements to a lecture course or as essential references for students or practicing engineers working on design projects. New discussion of conceptual plant design, flowsheet development and revamp design Significantly increased coverage of capital cost estimation, process costing and economics New chapters on equipment selection, reactor design and solids handling processes New sections on fermentation, adsorption, membrane separations, ion exchange and chromatography Increased coverage of batch processing, food, pharmaceutical and biological processes All equipment chapters in Part II revised and updated with current information Updated throughout for latest US codes and standards, including API, ASME and ISA design codes and ANSI standards Additional worked examples and homework problems The most complete and up to date coverage of equipment selection 108 realistic commercial design projects from diverse industries A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data and Excel spreadsheet calculations plus over 150 Patent References, for downloading from the companion website Extensive instructor resources: 1170 lecture slides plus fully worked solutions manual available to adopting instructors

Fluid Catalytic Cracking Technology and Operations Joseph W. Wilson.1997 Fluid catalytic cracking (FCC) is the dominant conversion process in petroleum refineries and the major contributor to value added in the refining process. Successful operation of the FCC unit is critical to the operation of the FCC unit is critical to the operating success of most refineries. This book provides a complete and in-depth view of FCC process, design and operating principles, and the current FCC technologies available to the refining industry.

Fundamentals of Petroleum Refining Mohamed A. Fahim, Taher A. Al-Sahhaf, Amal Elkilani.2009-11-19 Fundamentals of Petroleum Refining presents the fundamentals of thermodynamics and kinetics, and it explains the scientific background essential for understanding refinery operations. The text also provides a detailed introduction to refinery engineering topics, ranging from the basic principles and unit operations to overall refinery economics. The book covers important topics, such as clean fuels, gasification, biofuels, and environmental impact of refining, which are not commonly discussed in most refinery textbooks. Throughout the source, problem sets and examples are given to help the reader practice and apply the fundamental principles of refining. Chapters 1-10 can be used as core materials for teaching undergraduate courses. The first two chapters present an introduction to the petroleum refining industry and then focus on feedstocks and products. Thermophysical properties of crude oils and petroleum fractions, including processes of atmospheric and vacuum distillations, are discussed in Chapters 3 and 4. Conversion processes, product blending, and alkylation are covered in chapters 5-10. The remaining chapters discuss hydrogen production, clean fuel production, refining economics and safety, acid gas treatment and removal, and methods for environmental and effluent treatments. This source can serve both professionals and students (on undergraduate and graduate levels) of Chemical and Petroleum Engineering, Chemistry, and Chemical Technology. Beginners in the engineering field, specifically in the oil and gas industry, may also find this book invaluable. Provides balanced coverage of fundamental and operational topics Includes spreadsheets and process simulators for showing trends and simulation case studies Relates processing to planning and management to give an integrated picture of refining

Petroleum Refining Design and Applications Handbook, Volume 1 A. Kayode Coker.2018-08-09 There is a renaissance that is occurring in chemical and process engineering, and it is crucial for today's scientists, engineers, technicians, and operators to stay current. With so many changes over the last few decades in equipment and processes, petroleum refining is almost a living document, constantly needing updating. With no new refineries being built, companies are spending their capital re-tooling and adding on to existing plants. Refineries are like small cities, today, as they grow bigger and bigger and more and more complex. A huge percentage of a refinery can be changed, literally, from year to year, to account for the type of crude being refined or to integrate new equipment or processes. This book is the most up-to-date and comprehensive coverage of the most significant and recent changes to petroleum refining, presenting the state-of-the-art to the engineer, scientist, or student. Useful as a textbook, this is also an excellent, handy go-to reference for the veteran engineer, a volume no chemical or process engineering library should be without. Written by one of the world's foremost authorities, this book sets the standard for the industry and is an integral part of the petroleum refining renaissance. It is truly a must-have for any practicing engineer or student in this area.

Hydroprocessing for Clean Energy Frank (Xin X.) Zhu, Richard Hoehn, Vasant Thakkar, Edwin Yuh.2017-01-04 Provides a holistic approach that looks at changing process conditions, possible process design changes, and process technology upgrades Includes process integration techniques for improving process designs and for applying optimization techniques for improving operations focusing on hydroprocessing units. Discusses in details all important aspects of hydroprocessing - including catalytic materials, reaction mechanism, as well as process design, operation and control, troubleshooting and optimization Methods and tools are introduced that have a successful application track record at UOP and many industrial plants in recent years Includes relevant calculations/software/technologies hosted online for purchasers of the book

Hubbert's Peak Kenneth S. Deffeyes.2009 In 2001, Kenneth Deffeyes made a grim prediction: oil production would reach a peak within the next decade - and there was nothing anyone could do to stop it. In this updated edition of Hubbert's Peak, Deffeyes explains the crisis that few now deny we are headed toward. Using geology and economics, he shows how everything from the rising price of groceries to the subprime mortgage crisis has been exacerbated by the shrinking supply - and growing price - of oil. Although there is no easy solution to these problems, Deffeyes argues that the first step is understanding the trouble that we are in.--BOOK JACKET.

Handbook of Petroleum Refining Processes Robert A. Meyers.2003-10-14 * Offers detailed description of process chemistry and thermodynamics and product by-product specifications of plants * Contributors are drawn from the largest petroleum producers in the world, including Chevron, Mobil, Shell, Exxon, UOP, and Texaco * Covers the very latest technologies in the field of petroleum refining processes * Completely updated 3rd Edition features 50% all new material

Handbook of Fluidization and Fluid-Particle Systems Wen-Ching Yang.2003-03-19 This reference details particle characterization, dynamics, manufacturing, handling, and processing for the employment of multiphase reactors, as well as procedures in reactor scale-up and design for applications in the chemical, mineral, petroleum, power, cement and pharmaceuticals industries. The authors discuss flow through fixed beds, elutriation and entrainment, gas distributor and plenum design in fluidized beds, effect of internal tubes and baffles, general approaches to reactor design, applications for gasifiers and combustors, dilute phase pneumatic conveying, and applications for chemical production and processing. This is a valuable guide for chemists and engineers to use in their day-to-day work.

Fluid Catalytic Cracking III .1994

Fluid Catalytic Cracking VI: Preparation and Characterization of Catalysts Mario L. Occelli.2004-07-06 This volume looks at the recent progress of this technology as reported in the 21 papers presented during the 219th National Meeting of the ACS in New York, September 5-11, 2003. In addition, the volume focuses on the use of modern spectroscopic techniques for the generation of detailed structural analysis required for the advancement of the science of FCC design. Other chapters look at the use and importance of solid state nuclear magnetic resonance (NMR), microcalorimetry and atomic force microscopy (AFM) to the study of FCCs and discussing strategies to control pollutant emissions from a refinery FCCU and looking at advances in FCC preparation.

Fluid Catalytic Cracking Handbook Reza Sadeghbeigi.2020-04-17 Fluid Catalytic Cracking Handbook: An Expert Guide to the Practical Operation, Design, and Optimization of FCC Units, Fourth Edition, enables readers to maximize the profitability and reliability of fluid catalytic cracking operations by covering all stages of FCC, including their design, operation, troubleshooting and optimization. It includes valuable chapters on FCC Main Fractionator and Gas Plant and Process Engineering Tools that provide engineers with the relevant tools they need to fully optimize processes and operations. This book presents technologies and processes that will improve the profitability and reliability of FCC units, along with lessons from Mr. Sadeghbeigi's 30 years of field experience. The book provides a valuable reference for experienced engineers, but is also an ideal reference for those who are developing their skills and knowledge base. Presents relevant, real world examples that enable petrochemical engineers to achieve real term savings Contains dedicated chapters on lessons learned from troubleshooting cases carried out by the author Includes sections on FCC Main Fractionator and Gas Plant Covers both SI and Imperial Units throughout

Whispering the Secrets of Language: An Emotional Journey through **Fluid Catalytic Cracking Handbook**

In a digitally-driven world wherever monitors reign great and quick communication drowns out the subtleties of language, the profound techniques and emotional nuances concealed within phrases usually move unheard. However, located within the pages of **Fluid Catalytic Cracking Handbook** a fascinating literary value sporting with fresh feelings, lies a fantastic quest waiting to be undertaken. Written by a talented

wordsmith, that charming opus invites viewers on an introspective journey, lightly unraveling the veiled truths and profound impact resonating within the cloth of every word. Within the psychological depths with this touching review, we shall embark upon a heartfelt exploration of the book is key subjects, dissect its fascinating writing style, and succumb to the strong resonance it evokes heavy within the recesses of readers hearts.

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Fluid Catalytic Cracking Handbook Introduction

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