

Handbook Of Petroleum Refining Processes Third Edition

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Handbook of Petroleum Refining Processes Industrial Press Inc.

Clearly divided into three main sections, this practical book familiarizes readers with the area of planning in petroleum refining and petrochemical industry, while introducing several planning and modeling strategies encompassing single site refinery plants, multiple refinery networks, petrochemical networks, and refinery and petrochemical planning systems. It equally provides an insight into possible research directions and recommendations for the area of refinery and petrochemical planning. Furthermore, several appendices are included to explain the general background necessary, including stochastic programming, chance constraint programming, and robust optimization. For engineers and managers working in the petroleum industry as well as academic researchers in production, logistics, and supply chain management.

Petroleum Refining Design and Applications Handbook, Volume 1 Pennwell Books

Introduces the reader to the production of the products in arefinery • Introduces the reader to the types of test methodsapplied to petroleum products, including the need forsSpecifications • Provides detailed explanations for accuratelyanalyzing and characterizing modern petroleum products • Rewritten to include new and evolving testmethods • Updates on the evolving test methods and new testmethods as well as the various environmental regulations arepresented

Handbook of Refinery Desulfurization John Wiley & Sons

Petroleum refining involves refining crude petroleum as well as producing raw materials for the petrochemical industry. This book covers current refinery processes and process-types that are likely to come on-stream during the next three to five decades. The book includes (1) comparisons of conventional feedstocks with heavy oil, tar sand bitumen, and bio-feedstocks; (2) properties and refinability of the various feedstocks; (3) thermal processes versus hydroprocesses; and (4) the influence of refining on the environment.

Handbook of Petroleum Refining John Wiley & Sons

The second edition of Handbook of Petroleum Refining Technology: Refining Made Easy - is a comprehensive and accessible resource for professionals, researchers, and students in the field of petroleum refining. This edition has been thoroughly reviewed, revised, and expanded to include the latest advancements and practices in the industry. The book covers a wide range of topics, including Base Aromatics Production Processes, Catalytic Cracking, Dehydrogenation, Hydrocracking, Hydrotreating, Isomerization, Separation Processes, Sulfur Compound Extraction and Sweetening, Visbreaking and Coking, catalytic Reforming, Olefins from Methanol, crude oil distillation, vacuum distillation, super fractionation, absorption, adsorption, crystallization, conversion processes, purification techniques, petroleum products and their uses, petrochemicals, refinery plant and facilities, and petroleum refining processes. The new edition provides in-depth coverage of essential processes such as crude oil distillation and vacuum distillation, which play a crucial role in determining refinery capacity. It also explores advanced techniques like super fractionation, absorption, adsorption, and crystallization, highlighting their benefits and applications in refining operations. The book delves into various conversion processes, purification techniques, and the production and uses of petroleum products and petrochemicals. It also provides insights into the design and operation of refinery plants and facilities.

Handbook of Petroleum Refining Processes, Fourth Edition Gulf Professional Publishing

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

Petroleum Refinery Process Economics John Wiley & Sons

A must-read for any practicing engineer or student in this area 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. This book offers 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.

Petroleum Refining Processes Springer

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 4 Elsevier

A reference that details the pertinent chemical reactions and emphasizes the plant design and operations of petroleum processing procedures. The handbook is divided into four sections: products, refining, manufacturing processes, and treating processes. Wherever possible, shortcut methods of calcula

Petroleum Refining Design and Applications Handbook, Volume 5 Gulf Professional Publishing

A comprehensive review of the theory and practice of the simulation and optimization of the petroleum refining processes Petroleum Refinery Process Modeling offers a thorough review of how to quantitatively model key refinery reaction and fractionation processes. The text introduces the basics of dealing with the thermodynamics and physical property predictions of hydrocarbon components in the context of process modeling. The authors - three experts on the topic - outline the procedures and include the key data required for building reaction and fractionation models with commercial software. The text shows how to filter through the extensive data available at the refinery and using plant data to begin calibrating available models and extend the models to include key fractionation sub-models. It provides a sound and informed basis to understand and exploit plant phenomena to improve yield, consistency, and performance. In addition, the authors offer information on applying models in an overall refinery context through refinery planning based on linear programming. This important resource: -Offers the basic information of thermodynamics and physical property predictions of hydrocarbon components in the context of process modeling -Uses the key concepts of fractionation lumps and physical properties to develop detailed models and workflows for atmospheric (CDU) and vacuum (VDU) distillation units -Discusses modeling FCC, catalytic reforming and hydroprocessing units Written for chemical engineers, process engineers, and engineers for measurement and control, this resource explores the advanced simulation tools and techniques that are available to support experienced and aid new operators and engineers.

Handbook of Petroleum Product Analysis John Wiley & Sons

Fundamentals of Petroleum Refining present 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. Petroleum refining is a unique and critical in the petroleum supply chain, from the wellhead to the pump. The other add value to petroleum mainly by moving and storing it (e.g., lifting crude oil to the surface; moving crude oil from oil fields to storage facilities and then to refineries; moving refined products from refinery to terminals and end-use locations, etc.). Refining adds value by converting crude oil (which in itself has little end-use value) into a range of refined products, including transportation fuels. The primary economic objective in refining is to maximize the value added in converting crude oil into finished products.

Petroleum Refinery Process Modeling McGraw Hill Professional

This handbook describes and discusses the features that make up the petroleum refining industry. It begins with a description of the crude oils and their nature, and continues with the saleable products from the refining processes, with a review of the environmental impact. There is a complete overview of the processes that make up the refinery with a brief history of those processes. It also describes design technique, operation, and, in the case of catalytic units, the chemistry of the reaction routes. These discussions are supported by calculation procedures and examples, sufficient to enable input to modern computer simulation packages.

Handbook of Industrial Hydrocarbon Processes McGraw Hill Professional

Petroleum Engineer's Guide to Oil Field Chemicals and Fluids is a comprehensive manual that provides end users with information about oil field chemicals, such as drilling muds, corrosion and scale inhibitors, gelling agents and bacterial control. This book is an extension and update of Oil Field Chemicals published in 2003, and it presents a compilation of materials from literature and patents, arranged according to applications and the way a typical job is practiced. The text is composed of 23 chapters that cover oil field chemicals arranged according to their use. Each chapter follows a uniform template, starting with a brief overview of the chemical followed by reviews, monomers, polymerization, and fabrication. The different aspects of application, including safety and environmental impacts, for each chemical are also discussed throughout the chapters. The text also includes handy indices for trade names, acronyms and chemicals. Petroleum, production, drilling, completion, and operations engineers and managers will find this book invaluable for project management and production. Non-experts and students in petroleum engineering will also find this reference useful. Chemicals are ordered by use including drilling muds, corrosion inhibitors, and bacteria control Includes cutting edge chemicals and polymers such as water soluble polymers and viscosity control Handy index of chemical substances as well as a general chemical index

Petroleum Refining McGraw-Hill Prof Med/Tech

Petroleum refining involves refining crude petroleum as well as producing raw materials for the petrochemical industry. This book covers current refinery processes and process-types that are likely to come on-stream during the next three to five decades. The book includes (1) comparisons of conventional feedstocks with heavy oil, tar sand bitumen, and bio-feedstocks; (2) properties and refinability of the various feedstocks; (3) thermal processes versus hydroprocesses; and (4) the influence of refining on the environment.

Handbook of Petroleum Processing Independently Published

This work highlights contemporary approaches to resource utilization and provides comprehensive coverage of technological advances in residuum conversion. It illustrates state-of-the-art engineering methods for the refinement of heavy oils, bitumen, and other high-sulphur feedstocks.

Handbook of Petroleum Refining Processes Lulu.com

Petroleum refiners must face billion-dollar investments in equipment in order to meet ever-changing environmental requirements. Because the design and construction of new processing units entail several years' lead time, refiners are reluctant to commit these dollars for equipment that may no longer meet certain conditions when the units come on stream. Written by experts with both academic and professional experience in refinery operation, design, and evaluation, Petroleum Refining Technology and Economics, Fifth Edition is an essential textbook for students and a vital resource for engineers. This latest edition of a bestselling text provides updated data and addresses changes in refinery feedstock, product distribution, and processing requirements resulting from federal and state legislation. Providing a detailed overview of today's integrated fuels refinery, the book discusses each major refining process as they relate to topics such as feedstock preparation, operating costs, catalysts, yields, finished product properties, and economics. It also contains end-of-chapter problems and an ongoing case study.

Handbook of Petroleum Refining Elsevier

Describes economic evaluations for both single processes and complete refineries, and illustrates how to use yield data, properties of products, and operating and capital costs in those evaluations. Two chapters on transportation fuels and environmental concerns have been added to the second edition. Annotation copyrighted by Book News, Inc., Portland, OR.

Refining Processes Handbook CRC Press

This fully revised resource presents the latest technologies and processes for petroleum refining from the world's leading producers.

Handbook of Petroleum Refining Processes has become a key reference in the chemical and petroleum engineering markets. The book is unique in that it presents licensable technologies for the refining of petroleum and production of environmentally acceptable fuels and petrochemical intermediates. The new edition covers the gamut of global refining technologies in light of recent changes to the sources of these fuels, as well as the most up-to-date global environmental regulations. Contributions come from such major licensors of petroleum refining technology as UOP, Inc., Shell, ExxonMobil Research and Engineering Company (EMRE), Chevron Lummus Global, Phillips 66, Belco, BP, and others. The new edition shifts its emphasis to accommodate the increased production of shale gas and shale oil which is changing the overall mix of hydrocarbon feeds. Declining conventional crude production and the need for regional energy independence continues to drive demand to use lower-cost, alternate feedstocks such as coal, shale oil, and heavy crude. To use alternate feedstocks in existing refineries, many processes need to be modified. The increase in diesel demand and stricter fuel specifications is driving refiners to look for ways to produce higher yields from existing assets. The book reflects these factors, plus the increase in residue conversion; hydrocracking evolving as a primary conversion process; and hydrotreating increasing as a way to treat virgin and cracked middle distillate streams. 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, Shell, ExxonMobil, and UOP Covers the very latest technologies in the field of petroleum refining processes and the shift toward shale gas and oil A complete listing and explanation of licensable global technologies for the refining of petroleum and the production of environmentally acceptable fuels and petrochemical intermediates Provides product-by-product specifications and process economics – capital investment annualized capital costs and the price range for each product

Handbook of Petroleum Refining Processes (3rd Edition). McGraw Hill Professional

The properties of fuel oils. The possibilities and limitations of each grade. Methods which can be used to assure uniform quality and efficient combustion. Fuel oil impurities and how they affect combustion. How to diagnose and solve problems.

This book is a Print-on-Demand edition. It replaces ISBN 978-0-8311-0205-0. This standard reference presents a broad scope of fuel oil technology. It uses both English and Metric units throughout. Chemistry of Petroleum Petroleum Refining Processes Grades and Types of Fuel Oils Gravity Heat of Combustion Viscosity Water and Sediment Carbon Residue Ash

and Salt Residue Flash and Fire Points Pour Point Sulfur Color Fuel Oil Distillates Preheating of Fuel Oils Sampling Storage Tanks Stability of Fuel Oils Fuel Oil Treatments Reclaimed Fuel Oils Blending of Oils Transportation and Storage Troubles and Causes Stand-by Fuel Oil Diesel Fuel Oils Index

Handbook of Petrochemical Processes Gulf Professional Publishing

PETROLEUM REFINING With no new refineries having been built in decades, companies continue to build onto or reverse engineer and re-tool existing refineries. With so many changes in the last few years alone, books like this are very much in need. There is truly a renaissance for chemical and process engineering going on right now across multiple industries. This fifth and final volume in the "Petroleum Refining Design and Applications Handbook" set, this book continues 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. Besides the list below, this groundbreaking new volume describes blending of products from the refinery, applying the ternary diagrams and classifications of crude oils, flash point blending, pour point blending, aniline point blending, smoke point and viscosity blending, cetane and diesel indices. The volume further reviews refinery operational cost, cost allocation of actual usage, project and economic evaluation involving cost estimation, cash flow involving return on investment, net present values, discounted cash flow rate of return, net present values, payback period, inflation and sensitivity analysis, and so on. It reviews global effects on the refining economy, carbon tax, carbon foot print, global warming potential, carbon dioxide equivalent, carbon credit, carbon offset, carbon price, and so on. It reviews sustainability in petroleum refining and alternative fuels (biofuels and so on), impact of the overall greenhouse effects, carbon capture and storage in refineries, process intensification in biodiesel, biofuel from green diesel, acid-gas removal and emerging technologies, carbon capture and storage, gas heated reformer unit, pressure swing adsorption process, steam methane reforming for fuel cells, grey, blue and green hydrogen production, new technologies for carbon capture and storage, carbon clean process design, refinery of the future, refining and petrochemical industry characteristics. The text is packed with Excel spreadsheet calculations and Honeywell UniSim Design software in some examples, and it includes an invaluable glossary of petroleum and petrochemical technical terminologies. 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.

Handbook of Petroleum Processing 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.