

Hydrocarbon Processing Refining Petrochemical Gas

*** 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**
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. 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
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
Project Numbers; 1957
Petrochemical Processing, Hydrocarbon Technology and Green Engineering

Petroleum Processing Handbook

Petrochemistry

As feedstocks to refineries change, there must be an accompanying change in refinery technology. This means a movement from conventional means of refining heavy feedstocks using (typically) coking technologies to more innovative processes that will coax the last drips of liquid fuels from the feedstock. This book presents the evolution of refinery processes during the last century and as well as the means by which refinery processes will evolve during the next three-to-five decades. Chapters contain material relevant to (1) comparisons of current feedstocks with heavy oil and bio-feedstocks; (2) evolution of refineries since the 1950s, (3) properties and refinability of heavy oil and bio-feedstocks, (4) thermal processes vs. hydroprocesses, and (5) evolution of products to match the environmental market. Process innovations that have influenced refinery processing over the past three decades are presented, as well as the relevant patents that have the potential for incorporation into future refineries. • Comparison of current feedstocks with heavy oil and bio-feedstocks. • Evolution of refineries over the past three decades. • Properties and refinability of heavy oil and bio-feedstocks. • Thermal processes vs. Hydroprocesses. • Evolution of products to match the environmental market. Investigates the engineering and plant design challenges presented by heavy oil and bio-feedstocks Explores the legislative and regulatory climate, including increasingly stringent environmental requirements Examines the trade-offs of thermal processes vs. hydroprocesses
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.

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.

In this first volume, the reader will find, collected and condensed, the information needed to characterize, analyze, and evaluate crude oils from different origins and their corresponding petroleum cuts as well. The characteristics and specifications of all the petroleum products along with their simplified process flowsheets are reviewed.Contents: 1. Composition of crude oils and petroleum products. 2. Fractionation and elemental analysis of crude oils and petroleum cuts. 3. Characterization of crude oils and petroleum fractions. 4. Methods for the calculation of hydrocarbon physical properties. 5. Characteristics of petroleum products for energy use (motor fuels - heating fuels). 6. Characteristics of non-fuel petroleum products. 7. Standards and specifications of petroleum products. 8. Evaluation of crude oils. 9. Additives for motor fuels and lubricants. 10. Introduction to refining. Appendices: Principal characteristics of pure components. Principal standard test methods for petroleum products.

References. Index.

Handbook of X-Ray Spectrometry

Handbook of Petroleum Refining Processes, Fourth Edition

Natural Gas Processing

Challenges and Opportunities

Hydrocarbon Processing & Petroleum Refiner

This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

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

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.

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.

Technology and Engineering Design

Handbook of Petroleum Refining

Hydrocarbon Processing

Fundamentals of Petroleum Refining

Handbook of Industrial Hydrocarbon Processes

In Chemistry of Petrochemical Processes, readers find a handy and valuable source of information containing insights into petrochemical reactions and products, process technology, and polymer synthesis. The book reviews and describes the reactions and processes involved in transforming petroleum-based hydrocarbons into the chemicals that form the basis of the multi-billion dollar petrochemical industry. In addition, the book includes information on new process developments for the production of raw materials and intermediates for petrochemicals that have surfaced since the book’s first edition. Provides a quick understanding of the chemical reactions associated with oil and gas processing Contains insights into petrochemical reactions and products, process technology, and polymer synthesis

Sets forth the many technical procedures involved in refining. Included are a new chapter on simple and complex refineries, and a revised chapter on gasoline blending, including current information on alcohol blending components.

This book is a must-read for the latest generation of scientists, engineers, and researchers in the petroleum industry. The product of over four decades of research, experience, and study by Dr. Dwijen Banerjee, who carefully preserves the history of the thermal processing of hydrocarbons, giving credit to the pioneering scientists and discoverers of the process. In this first-of-its-kind book, the author summarizes and systematically leads readers through all aspects of the thermal cracking processes from the research laboratory to the commercial applications of the petrochemical industry. Fossil fuels consist of a continuous series of hydrocarbons mainly divided into natural gas (C1-C4), conventional crude oil (C5-C40), heavy oil/bitumen (>C40). This book discusses thermal processing of hydrocarbons -- with a special emphasis on lighter hydrocarbons -- whose main source is shale gas and tight oil that’s recently been made abundant through fracking technology. This book details many technical parameters involved in choosing a process when considering the type of feedstocks; operating conditions; selectivity of the desired product; the market to be targeted; and the environmental regulations to be met while also considering the economic parameters such as the investment and profit margin that govern the final choice. Features and Benefits An introduction to the basic chemistry behind thermal processing, classifications, molecular structures, kinetics and thermodynamics, free radical reaction mechanisms, and product distributions. A focus on shale gas and tight oil production, properties, and processing as important sources of petrochemicals. Emphasis on the ‘petroleum to petrochemicals’ which has recently transformed the petroleum industry across the globe. An illustration of conversion technologies -- how the paraffinic hydrocarbons are converted into various petrochemicals and eventually lead to the finished products. Insight into the future of hydrocarbons based on environmental issues. Audience Scientists Engineers Researchers Students

For the first time, an essential reference for the multi-billion dollar petrochemical industry that covers the complex topics involved in refining.

Worldwide Directory of Plants in the Hydrocarbon Processing Industry

Petroleum Refining

Petroleum to Petrochemicals

Catalysts in Petroleum Refining 1989

The Refinery of the Future

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

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.

Conventional coal, oil and gas resources used worldwide for power production and transportation are limited and unsustainable. Research and development into clean, alternative hydrocarbon fuels is therefore aimed at improving fuel security through exploring new feedstock conversion techniques, improving production efficiency and reducing environmental impacts. Advances in clean hydrocarbon fuel processing provides a comprehensive and systematic reference on the range of alternative conversion processes and technologies. Following introductory overviews of the feedstocks, environmental issues and life cycle assessment for alternative hydrocarbon fuel processing, sections go on to review solid, liquid and gaseous fuel conversion. Solid fuel coverage includes reviews of liquefaction, gasification, pyrolysis and biomass catalysis. Liquid fuel coverage includes reviews of sulfur removal, partial oxidation and hydroconversion. Gaseous fuel coverage includes reviews of Fischer-Tropsch synthesis, methanol and dimethyl ether production, water-gas shift technology and natural gas hydrate conversion. The final section examines environmental degradation issues in fuel processing plants as well as automation, advanced process control and process modelling techniques for plant optimisation Written by an international team of expert contributors, Advances in clean hydrocarbon fuel processing provides a valuable reference for fuel processing engineers, industrial petrochemists and energy professionals, as well as for researchers and academics in this field. A comprehensive reference on the range of alternative conversion processes and technologies Provides an overview of the feedstocks, environmental issues and life cycle assessments for alternative hydrocarbon fuel processing, including a review of the key issues in solid, liquid and gaseous fuel conversion Examines automation, advanced process control and process modelling techniques for plant optimisation

Catalysis plays an increasingly critical role in modern petroleum refining and basic petrochemical industries as market demands for and specifications of petroleum and petrochemical products are continuously changing. As we enter the 21st century, new challenges for catalysis science and technology are anticipated in almost every field. Particularly, better utilization of petroleum resources and demands for cleaner transportation fuels are major items. It was against this background that the 2nd International Conference on Catalysts in Petroleum Refining and Petrochemical Industries was organized. The conference was attended by around 300 specialists in the catalysis field from both academia and industry from over 30 countries. It provided a forum for the exchange of ideas between scientists and engineers from the region with their counterparts from industrialized countries. The papers from the conference, which were carefully selected from around 100 submissions, were refereed in terms of scientific and technical content and format in accordance with internationally accepted standards. They comprise a mix of reviews providing an overview of selected areas, original fundamental research results, and industrial experiences.

Modern Petroleum Technology

Thermal and Catalytic Processes in Petroleum Refining

Science and Technology

Springer Handbook of Petroleum Technology

Separation Technologies for the Industries of the Future

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 covers 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.

Written by an author with over 38 years of experience in the chemical and petrochemical process industry, this handbook will present an analysis of the process steps used to produce industrial hydrocarbons from various raw materials. It is the first book to offer a thorough analysis of external factors effecting production such as: cost, availability and environmental legislation. An A-Z list of raw materials with a commentary regarding their cost and availability. Specific processing operations described in the book include: distillation, thermal cracking and coking, catalytic methods, hydroprocesses, thermal and catalytic reforming, isomerization, alkylation processes, polymerization processes, solvent processes, water removal, fractionation and acid gas removal. Flow diagrams and descriptions of more than 100 processes. Analysis of chemical reactions and process steps that are required to produce chemicals from various raw materials Properties, availability and environmental impact of various raw materials used in hydrocarbon processing

A comprehensive textbook on petrochemical conversion processes for petroleum and natural gas fractions as produced by refinery operations This innovative textbook provides essential links between the chemical sciences and chemical technology, between petrochemistry and hydrocarbon technology. The book brings alive key concepts forming the basis of chemical technology and presents a series of case studies. In all chapters, the processes described are accompanied by simplified flow schemes, encouraging students to think in terms of conceptual process designs. Petrochemistry: Petrochemical Processing, Hydrocarbon Technology and Green Engineering introduces students to a variety of topics related to the petrochemical industry, hydrocarbon processing, fossil fuel resources, as well as fuels and combustion. Fundamentals and principals for designing several of the processes in the book, including discussions on thermodynamics, chemical kinetics, reactor calculations, and industrial catalysts. The following chapters address recent advances in hydrocarbon technology, energy technology, and sources of hydrocarbons. The book then goes on to discuss the petrochemical industry based on four basic pillars: Production of lower alkenes; other sources of lower alkenes; petrochemicals from C2-C3 alkenes Production of BTX aromatics; chemicals from BTX aromatics C1 technology Diversification of petrochemicals The growing importance of sustainable technology, process intensification and addressing greenhouse gas emissions is reflected throughout the book. Written for advanced students working in the field of hydrocarbon technology, natural gas, energy materials and technologies, alternative fuels, and recycling technologies the book is also a valuable reference for industrial practitioners in the oil and gas industry.

Hydrocarbon ProcessingHydrocarbon Processing & Petroleum RefinerHandbook of Industrial Hydrocarbon ProcessesGulf Professional Publishing

Chemistry of Petrochemical Processes

Planning and Integration of Refinery and Petrochemical Operations

Petroleum Refining: Crude oil, petroleum products, process flowsheets

Petroleum Refining for the Non-technical Person

Refining Processes Handbook

Natural gas is considered the dominant worldwide bridge between fossil fuels of today and future resources of tomorrow. Thanks to the recent shale boom in North America, natural gas is in a surplus and quickly becoming a major international commodity. Stay current with conventional and now unconventional gas standards and procedures with Natural Gas Processing: Technology and Engineering Design. Covering the entire natural gas process, Bahadori's must-have handbook provides everything you need to know about natural gas, including: Fundamental background on natural gas properties and single/multiphase flow factors How to pinpoint equipment selection criteria, such as US and international standards, codes, and critical design considerations A step-by-step simplification of the major gas processing procedures, like sweetening, dehydration, and sulfur recovery Detailed explanation on plant engineering and design steps for natural gas projects, helping managers and contractors understand how to schedule, plan, and manage a safe and efficient processing plant Covers both conventional and unconventional gas resources such as coal bed methane and shale gas Bridges natural gas processing with basic and advanced engineering design of natural gas projects including real world case studies Digs deeper with practical equipment sizing calculations for flare systems, safety relief valves, and control valves

These proceedings reflect the important role of catalysis in petroleum refining and the effects of factors such as environmental legislation on the industry. They also show the emergence of significant scientific expertise in the Middle East - the cradle of the oil industry. Participants from all over the world took part in the meeting and the book contains a well-balanced selection of articles from both academia and industry. Current trends in the oil industry focused attention mainly on heavy end hydrotreating, but other processes also gained their share of attention. An invaluable feature of the meeting was the two panel discussions where participants took the opportunity to obtain advance on many real and immediate problems.

"Updates fundamentals and applications of all modes of x-ray spectrometry, including total reflection and polarized beam x-ray fluorescence analysis, and synchrotron radiation induced x-ray emission. Promotes the accurate measurement of samples while reducing the scattered background in the x-ray spectrum."

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 calculation are provided.

Handbook of Petrochemical Processes

Hydrogen Production Technologies

Oil and Gas Production Handbook: An Introduction to Oil and Gas Production

Technology and Economics, Fifth Edition

Petroleum Refining Processes

Separation processes are or processes that use physical, chemical, or electrical forces to isolate or concentrate selected constituents of a mixture are essential to the chemical, petroleum refining, and materials processing industries. In this volume, an expert panel reviews the separation process needs of seven industries and identifies technologies that hold promise for meeting these needs, as well as key technologies that could enable separations. In addition, the book recommends criteria for the selection of separations research projects for the Department of Energy's Office of Industrial Technology.

The author, a highly respected consultant to major U.S. refineries, shares information on topics such as common coke quality questions, catalyst-feed mixing, light hydrocarbon distillation, steam to heater passes, haze in jet fuel, optimizing excess air, convection and radiation, reboiler-induced foaming, flooding and computer control consoles. Of special interest in the new section on gas drying and compression. A troubleshooting checklist accompanies each chapter. The author expertly combines field observations with engineering principles to unravel and solve specific process operation problems using an easy-to-understand style devoid of textbook terminology and excessive mathematics. Contents: Specific processes Process equipment Practical problems Gas drying and compression The process engineer's job Appendix.

Fouling in Refineries is an important and ongoing problem that directly affects energy efficiency resulting in increased costs, production losses, and even unit shutdown, requiring costly expenditures to clean up equipment and return capacity to positive levels. This text addresses this common challenge for the hydrocarbon processing community within each unit of the refinery. As refineries today face a greater challenge of accepting harder to process heavier crudes and the ongoing flow of the lighter shale oil feedstocks, resulting in bigger challenges to balance product stability within their process equipment, this text seeks to inform all relative refinery personnel on how to monitor fouling, characterize the deposits, and follow all available treatments. With basic modeling and chemistry of fouling and each unit covered, users will learn how to operate at maximum production rates and elongate the efficiency of their refinery's capacity. Presents an understanding of the breakdown of fouling per refinery unit, including distillation and coking units Provides all the factors, crude types, and refining blends that cause fouling, especially the unconventional feedstocks and high acid crudes used today Helps users develop an analysis-based treatment and control strategy that empowers them to operate refinery equipment at a level that prevents fouling from occurring

The book is organized in three parts. Part I shows how the catalytic and electrochemical principles involve hydrogen production technologies. Part II is devoted to biohydrogen production and introduces gasification and fast pyrolysis biomass, dark fermentation, microbial electrolysis and power production from algae. The last part of the book is concerned with the photo hydrogen generation technologies. Recent developments in the area of semiconductor-based nanomaterials, specifically semiconductor oxides, nitrides and metal-free semiconductors based nanomaterials for photocatalytic hydrogen production are extensively discussed in this part.

Advances in Clean Hydrocarbon Fuel Processing

Handbook of Petroleum Processing

Fouling in Refineries

Distillation & Hydrocarbon Processing Practices

Thermal Processing of Hydrocarbons

Distillation & Hydrocarbon Processing Practices is a practical reference guide to the design and operations of hydrocarbon processing plants (refineries, petrochemical plants, and gas processing plants). Ashis Nag illustrates advanced practices in distillation with examples of process simulation and basic principles. Nag's extensive knowledge and more than 35 years of experience as an engineer supply the practical examples and design guidelines contained in this text. Its many case studies will assist engineering students as well as practicing engineers in understanding the inner workings at these complex facilities.

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

Troubleshooting Process Operations

Fundamentals of Lng Plant Design

Catalysts in Petroleum Refining and Petrochemical Industries 1995

Handbook of Petroleum Refining Processes

Processing of Heavy Crude Oils