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PETROLEUM REFINERY PROCESS ECONOMICS

Pennwell Corporation 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

Elsevier Besides covering topics like catalytic cracking, hydrocracking, and alkylation, this volume has chapters on waste water treatment and the economics of managing or commissioning the design of a petroleum refinery. Found only in this volume is material on operating a jointly owned and operated refinery. (Over the last decade, the ownership of many refineries has shifted to small companies, from the large, integrated companies. Because of this shift, many refineries are now jointly owned and operated.) Filled with handy process flow diagrams, this volume is the only reference that a chemical engineer or process manager in a petroleum refinery needs for answers to everyday process and operations questions. * Covers the technologies and operations of petroleum refineries * Provides material on operating a jointly owned and operated refinery * Gives readers a comprehensive introduction to petroleum refining, as well as a full reference to engineers in the field

THE REFINERY OF THE FUTURE

William Andrew 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

FUNDAMENTALS OF PETROLEUM REFINING

Elsevier 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

KNOWLEDGE MANAGEMENT FOR COMPETITIVE ADVANTAGE DURING ECONOMIC CRISIS

IGI Global Strategy management has always been a crucial business aspect that a company must understand to remain successful in the business world. However, there are a number of different approaches that a company can employ in order to differentiate themselves from the competition. *Knowledge Management for Competitive Advantage During Economic Crisis* brings together the various approaches that affect the superiority of a company's organizational performance and the gains they can make over their competitors. By focusing on concepts such as organizational learning and intellectual capital, this book is an indispensable reference source for researchers, practitioners, graduate students, and business managers interested in understanding what approaches are necessary to ensure superior organizational performance.

PRACTICAL ADVANCES IN PETROLEUM PROCESSING

Springer 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

OIL EXPLORATION

BASIN ANALYSIS AND ECONOMICS

Academic Press This book presents quantitative procedures for assessing predictions of potential oil recovery (basin size, hydrocarbon content), and economic impact (exploration cost, production, transport, and refining). Emphasis is placed on advances made in analytical methods and improved techniques developed during the last decade.

PETROLEUM REFINING

TECHNOLOGY AND ECONOMICS, FIFTH EDITION

CRC Press 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 INDUSTRIAL HYDROCARBON PROCESSES

Gulf Professional Publishing 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 and their properties are presented along 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 250 leading-edge process technologies An 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

HANDBOOK OF NATURAL GAS TRANSMISSION AND PROCESSING

Elsevier *Handbook of Natural Gas Transmission and Processing* gives engineers and managers complete coverage of natural gas transmission and processing in the most rapidly growing sector to the petroleum industry. The authors provide a unique discussion of new technologies that are energy efficient and environmentally appealing at the same time. It is an invaluable reference on natural gas engineering and the latest techniques for all engineers and managers moving to natural gas processing as well as those currently working on natural gas projects. Provides practicing engineers critical information on all aspects of gas gathering, processing and transmission First book that treats multiphase flow transmission in great detail Examines natural gas energy costs and pricing with the aim of delivering on the goals of efficiency, quality and profit

PRACTICAL ADVANCES IN PETROLEUM PROCESSING

Springer Science & Business Media 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

AMERICAN BOOK PUBLISHING RECORD

PETROLEUM REFINING FOR THE NON-TECHNICAL PERSON

Pennwell Corporation 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.

PETROLEUM REFINING

TECHNOLOGY AND ECONOMICS

Marcel Dekker This third edition presents the latest developments in the fundamental aspects of petroleum refining technology and economics, discussing both the physical and chemical properties of petroleum, petroleum products and oxygenate fuel additives. It examines current environmental requirements and downstream implications of the Clean Air Act regarding processing, fuels and product specifications. End-of-chapter problems, a case study and sample illustrations are included.

CHEMICAL ENGINEERING DESIGN

PRINCIPLES, PRACTICE AND ECONOMICS OF PLANT AND PROCESS DESIGN

Elsevier *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

ENERGY SAVING AND CARBON REDUCTION

APPROACHES FOR ENERGY AND CHEMICAL INDUSTRIES

Springer The book provides an integrated energy/exergy analysis method to identify the energy utilization issues and systematically propose the cost-effective energy-saving and CO₂ mitigation/capture solution. There is a strong market needs on energy-saving and greenhouse gas (GHG) reduction. CO₂ mitigation/capture will achieve economic benefit of fuel, power, and carbon tax saving as well as environmental GHG reduction. The book is a professional book for energy-saving and GHG gas mitigation technology in oil & gas, oil refining, and chemical industry. It is an integrated technical book that combines energy utilization theory and practical method, including: thermodynamic analysis for unit operation and process units; energy and exergy calculation for various process streams and utilities; three-link energy/exergy analysis model; energy/exergy balance of equipment, process units, and entire plant; approach and technology of energy saving; optimization of pipeline and equipment; pinch energy-saving technology and its application; CO₂ capture and utilization with 8 case studies incorporated for all different scenarios; key energy-saving technologies such gas turbine, FCCU regeneration CO combustion and energy recovery, flue gas turbine system optimization, low-grade heat recovery and utilization. The book is intended for engineers and professional personnel who are working in process engineering, EPC companies, chemical and petrochemical plants, refineries, oil & gas production facilities, power generation plant. It can also be a professional reference or textbook for undergraduate or graduate-level university students and teaching personnel of chemical, energy, and process engineering faculties of universities.

OIL ON THE BRAIN

ADVENTURES FROM THE PUMP TO THE PIPELINE

Broadway Looks at the economics of the petroleum industry and traces how crude oil from fields around the world eventually

becomes the gasoline for automobiles, in a new edition containing an updated epilogue. Reprint. 20,000 first printing.

REFINERY FEEDSTOCKS

CRC Press Over the last several decades, the petroleum industry has experienced significant changes in resource availability, petro-politics, and technological advancements dictated by the changing quality of refinery feedstocks. However, the dependence on fossil fuels as the primary energy source has remained unchanged. *Refinery Feedstocks* addresses the problems of changing feedstock availability and properties; the refining process; and solids deposition during refining. This book will take the reader through the various steps that are necessary for crude oil evaluation and refining including the potential for the use of coal liquids, shale oil, and non-fossil fuel materials (biomass) as refinery feedstocks. Other features: Describes the various types of crude oil and includes a discussion of extra heavy oil and tar sand bitumen Includes basic properties and specifications of crude oil and the significance in refinery operations This book is a handy reference for engineers, scientists, and students who want an update on crude oil refining and on the direction the industry must take to assure the refinability of various feedstocks and the efficiency of the refining processes in the next fifty years. Non-technical readers, with help from the extensive glossary, will also benefit from reading this book.

OIL & GAS JOURNAL DATA BOOK

THE PARTY'S OVER

OIL, WAR AND THE FATE OF INDUSTRIAL SOCIETIES

New Society Publishers The world is about to run out of cheap oil and change dramatically. Within the next few years, global production will peak. Thereafter, even if industrial societies begin to switch to alternative energy sources, they will have less net energy each year to do all the work essential to the survival of complex societies. We are entering a new era, as different from the industrial era as the latter was from medieval times. In *The Party's Over*, Richard Heinberg places this momentous transition in historical context, showing how industrialism arose from the harnessing of fossil fuels, how competition to control access to oil shaped the geopolitics of the twentieth century and how contention for dwindling energy resources in the twenty-first century will lead to resource wars in the Middle East, Central Asia and South America. He describes the likely impacts of oil depletion and all of the energy alternatives. Predicting chaos unless the United States—the world's foremost oil consumer—is willing to join with other countries to implement a global program of resource conservation and sharing, he also recommends a "managed collapse" that might make way for a slower-paced, low-energy, sustainable society in the future. More readable than other accounts of this issue, with fuller discussion of the context, social implications and recommendations for personal, community, national and global action, Heinberg's updated book is a riveting wake-up call for human-kind as the oil era winds down, and a critical tool for understanding and influencing current US foreign policy.

HEAVY OIL RECOVERY AND UPGRADING

Gulf Professional Publishing *Heavy Oil Recovery and Upgrading* covers properties, factors, methods and all current and upcoming processes, giving engineers, new and experienced, the full spectrum of recovery choices, including SAGD, horizontal well technology, and hybrid approaches. Moving on to the upgrading and refining of the product, the book also includes information on in situ upgrading, refining options, and hydrogen production. Rounding out with environmental effects, management methods on refinery waste, and the possible future configurations within the refinery, this book provides engineers with a single source to make decisions and manage the full range of challenges. Presents the properties, mechanisms, screening criteria and field applications for heavy oil enhanced recovery projects Includes current upgrading options and future methods for refining heavy oil development Fills in the gaps between literature and practical application for everyday industry reference

OIL TRADE

HANDBOOK OF PETROLEUM PROCESSING

Springer 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.

REFINERY ENGINEERING

INTEGRATED PROCESS MODELING AND OPTIMIZATION

John Wiley & Sons A pioneering and comprehensive introduction to the complex subject of integrated refinery process simulation, using many of the tools and techniques currently employed in modern refineries. Adopting a systematic and practical approach, the authors include the theory, case studies and hands-on workshops, explaining how to work with real data. As a result, senior-level undergraduate and graduate students, as well as industrial engineers learn how to develop and use the latest computer models for the predictive modeling and optimization of integrated refinery processes. Additional material is available online providing relevant spreadsheets and simulation files for all the models and examples presented in the book.

ENCYCLOPEDIA OF OPERATIONS RESEARCH AND MANAGEMENT SCIENCE

Springer Science & Business Media *Operations Research: 1934-1941*, 35, 1, 143-152; "British The goal of the Encyclopedia of Operations Research and Operational Research in World War II," 35, 3, 453-470; *Management Science is to provide to decision makers and "U. S. Operations Research in World War II,"* 35, 6, 910-925; *problem solvers in business, industry, government and and the 1984 article by Harold Lardner that appeared in academia a comprehensive overview of the wide range of Operations Research: "The Origin of Operational Research,"* ideas, methodologies, and synergistic forces that combine to 32, 2, 465-475. form the preeminent decision-aiding fields of operations re search and management science (OR/MS). To this end, we The Encyclopedia contains no entries that define the fields enlisted a distinguished international group of academics of operations research and management science. OR and MS and practitioners to contribute articles on subjects for are often equated to one another. If one defines them by the which they are renowned. methodologies they employ, the equation would probably The editors, working with the Encyclopedia's Editorial stand inspection. If one defines them by their historical Advisory Board, surveyed and divided OR/MS into specific developments and the classes of problems they encompass, topics that collectively encompass the foundations, applica the equation becomes fuzzy. The formalism OR grew out of tions, and emerging elements of this ever-changing field. We the operational problems of the British and U. s. military also wanted to establish the close associations that OR/MS efforts in World War II.

ENHANCED RECOVERY METHODS FOR HEAVY OIL AND TAR SANDS

Elsevier Recent oil price fluctuations continue to stress the need for more efficient recovery of heavy oil and tar sand bitumen resources. With conventional production steadily declining, advances in enhanced recovery will be required so that oil production can be extended and reservoirs last longer. A practical guide on heavy-oil related recovery methods is essential for all involved in heavy oil production. To feed this demand, James Speight, a well-respected scientist and author, provides a must-read for all scientists, engineers and technologists that are involved in production enhancement. In *Enhanced Recovery Methods for Heavy Oil and Tar Sands*, Speight provides the current methods of recovery for heavy oil and tar sand bitumen technology, broken down by thermal and non-thermal methods. An engineer, graduate student or professional working with heavy oil, upcoming and current, will greatly benefit from this much-needed text.

NATURAL GAS

A BASIC HANDBOOK

Gulf Professional Publishing *Natural Gas: A Basic Handbook, Second Edition* provides the reader with a quick and accessible introduction to a fuel source/industry that is transforming the energy sector. Written at an introductory level, but still appropriate for engineers and other technical readers, this book provides an overview of natural gas as a fuel source, including its origins, properties and composition. Discussions include the production of natural gas from traditional and unconventional sources, the downstream aspects of the natural gas industry. including processing, storage, and transportation, and environmental issues and emission controls strategies. This book presents an ideal resource on the topic for engineers new to natural gas, for advisors and consultants in the natural gas industry, and for technical readers interested in learning more about this clean burning fuel source and how it is shaping the energy industry. Updated to include newer sources like shale gas Includes new discussions on natural gas hydrates and flow assurance Covers environmental issues Contain expanded coverage of liquefied natural gas (LNG)

UNDERSTANDING OIL PRICES

A GUIDE TO WHAT DRIVES THE PRICE OF OIL IN TODAY'S MARKETS

John Wiley & Sons It's a fair bet that most of what you think you know about oil prices is wrong. Despite the massive price fluctuations of the past decade, the received wisdom on the subject has remained fundamentally unchanged since the 1970s. When asked, most people - including politicians, financial analysts and pundits - will respond with a tired litany of reasons ranging from increased Chinese and Indian competition for diminishing resources and tensions in the Middle East, to manipulation by OPEC and exorbitant petrol taxes in the EU. Yet the facts belie these explanations. For instance, what really happened in late 2008 when, in just a few weeks, oil prices plummeted from \$144 dollars to \$37 dollars a barrel? Did Chinese and Indian demand suddenly dry up? Did Middle East conflicts magically resolve themselves? Did OPEC flood the market with crude? In each case the answer is a definitive no - quite the opposite in fact. Industry expert Salvatore Carollo explains that the truth behind today's increasingly volatile oil market is that over the past two decades oil prices have come untethered from all classical notions of supply and demand and have transcended any country's, consortium's, cartel's, or corporate entity's powers to control them. At play is a subtler, more complex game than most analysts realise (or are unwilling to admit to), a very dangerous game involving runaway financial speculation, self-defeating government policymaking and a concerted disinvestment in refinery capacity among the oil majors. In *Understanding Oil Prices* Carollo identifies the key players in this dangerous game, exploring their competing interests and motivations, their moves and

countermoves. Beginning with the 1976 oil embargo and moving through the 1986 Chernobyl incident, the implementation of the US Clean Air Act Amendments of 1990, and the precipitous expansion of the oil futures market since the turn of the century, he traces the vast structural changes which have occurred within the oil industry over the past four decades, identifying their economic, social and geopolitical drivers, and analysing their fallout in the global economy. He explores the oil industry's decision to scale down refining capacity in the face of increasing demand and the effects of global shortages of petrol, diesel, jet fuel, fuel oil, chemical feedstocks, lubricants and other essential finished products, and describes how, beginning in the year 2000, the oil futures market detached itself almost completely from the crude market, leading to the assetization of oil, and the crippling impact reckless speculation in oil futures has had on the global economy. Finally he proposes new, more sophisticated models that economists and financial analysts can use to make sense of today's oil market, while offering industry leaders and government policymakers prescriptions for stabilising the market to ensure a relatively steady flow of affordable oil. A concise, authoritative guide to understanding the complex, oft misunderstood oil markets, *Understanding Oil Prices* is an important resource for energy market participants, commodity traders and investors, as well as business journalists and government policymakers alike.

DEEP SHALE OIL AND GAS

Gulf Professional Publishing Natural gas and crude oil production from hydrocarbon rich deep shale formations is one of the most quickly expanding trends in domestic oil and gas exploration. Vast new natural gas and oil resources are being discovered every year across North America and one of those new resources comes from the development of deep shale formations, typically located many thousands of feet below the surface of the Earth in tight, low permeability formations. *Deep Shale Oil and Gas* provides an introduction to shale gas resources as well as offer a basic understanding of the geomechanical properties of shale, the need for hydraulic fracturing, and an indication of shale gas processing. The book also examines the issues regarding the nature of shale gas development, the potential environmental impacts, and the ability of the current regulatory structure to deal with these issues. *Deep Shale Oil and Gas* delivers a useful reference that today's petroleum and natural gas engineer can use to make informed decisions about meeting and managing the challenges they may face in the development of these resources. Clarifies all the basic information needed to quickly understand today's deeper shale oil and gas industry, horizontal drilling, fracture fluids chemicals needed, and completions Addresses critical coverage on water treatment in shale, and important and evolving technology Practical handbook with real-world case shale plays discussed, especially the up-and-coming deeper areas of shale development

INTRODUCTION TO PETROLEUM BIOTECHNOLOGY

Gulf Professional Publishing *Introduction to Petroleum Biotechnology* introduces the petroleum engineer to biotechnology, bringing together the various biotechnology methods that are applied to recovery, refining and remediation in the uses of petroleum and petroleum products. A significant amount of petroleum is undiscoverable in reservoirs today using conventional and secondary methods. This reference explains how microbial enhanced oil recovery is aiding to produce more economical and environmentally-friendly metabolic events that lead to improved oil recovery. Meanwhile, in the downstream side of the industry, petroleum refining operators are facing the highest levels of environmental regulations while struggling to process more of the heavier crude oils since conventional physical and chemical refining techniques may not be applicable to heavier crudes. This reference proposes to the engineer and refining manager the concepts of bio-refining applications to not only render heavier crudes as lighter crudes through microbial degradation, but also through biodenitrogenation, biodemetalization and biodesulfurization, making more petroleum derivatives purified and upgraded without the release of more pollutants. Equipped for both upstream and downstream to learn the basics, this book is a necessary primer for today's petroleum engineer. Presents the fundamentals behind petroleum biotechnology for both upstream and downstream oil and gas operations Provides the latest technology in reservoir recovery using microbial enhanced oil recovery methods Helps readers gain insight into the current and future application of using biotechnology as a refining and fuel blending method for heavy oil and tar sands

CHARACTERIZATION AND PROPERTIES OF PETROLEUM FRACTIONS

ASTM International The last three chapters of this book deal with application of methods presented in previous chapters to estimate various thermodynamic, physical, and transport properties of petroleum fractions. In this chapter, various methods for prediction of physical and thermodynamic properties of pure hydrocarbons and their mixtures, petroleum fractions, crude oils, natural gases, and reservoir fluids are presented. As it was discussed in Chapters 5 and 6, properties of gases may be estimated more accurately than properties of liquids. Theoretical methods of Chapters 5 and 6 for estimation of thermophysical properties generally can be applied to both liquids and gases; however, more accurate properties can be predicted through empirical correlations particularly developed for liquids. When these correlations are developed with some theoretical basis, they are more accurate and have wider range of applications. In this chapter some of these semitheoretical correlations are presented. Methods presented in Chapters 5 and 6 can be used to estimate properties such as density, enthalpy, heat capacity, heat of vaporization, and vapor pressure. Characterization methods of Chapters 2-4 are used to determine the input parameters needed for various predictive methods. One important part of this chapter is prediction of vapor pressure that is needed for vapor-liquid equilibrium calculations of Chapter 9.

HANDBOOK OF OFFSHORE OIL AND GAS OPERATIONS

Elsevier *Handbook of Offshore Oil and Gas Operations* is an authoritative source providing extensive up-to-date coverage of the technology used in the exploration, drilling, production, and operations in an offshore setting. Offshore oil and gas activity is growing at an expansive rate and this must-have training guide covers the full spectrum including geology, types of platforms, exploration methods, production and enhanced recovery methods, pipelines, and environmental management and impact, specifically worldwide advances in study, control, and prevention of the industry's impact on the marine environment and its living resources. In addition, this book provides a go-to glossary for quick reference. *Handbook of Offshore Oil and Gas Operations* empowers oil and gas engineers and managers to understand and capture on one of the fastest growing markets in the energy sector today. Quickly become familiar

with the oil and gas offshore industry, including deepwater operations Understand the full spectrum of the business, including environmental impacts and future challenges Gain knowledge and exposure on critical standards and real-world case studies

NATURAL WATER REMEDIATION

CHEMISTRY AND TECHNOLOGY

Butterworth-Heinemann *Natural Water Remediation: Chemistry and Technology* considers topics such as metal ion solubility controls, pH, carbonate equilibria, adsorption reactions, redox reactions and the kinetics of oxygenation reactions that occur in natural water environments. The book begins with the fundamentals of acid-base and redox chemistry to provide a better understanding of the natural system. Other sections cover the relationships among environmental factors and natural water (including biochemical factors, hydrologic cycles and sources of solutes in the atmosphere). Chemical thermodynamic models, as applied to natural water, are then discussed in detail. Final sections cover self-contained applications concerning composition, quality measurement and analyses for river, lake, reservoir and groundwater sampling. Covers the fundamentals of acid-base and redox chemistry for environmental engineers Focuses on the practical uses of water, soil mineral and bedrock chemistry and how they impact surface and groundwater Includes applications concerning composition, quality measurement and analyses for river, lake, reservoir and groundwater sampling

PROCESSING OF HEAVY CRUDE OILS

CHALLENGES AND OPPORTUNITIES

NAFTA

THE AMERICAN ECONOMIC REVIEW

AUSTRALIAN TRANSPORT LITERATURE INFORMATION SYSTEM

BULLETIN

PETROLEUM REFINING DESIGN AND APPLICATIONS HANDBOOK

RULES OF THUMB, PROCESS PLANNING, SCHEDULING, AND FLOWSHEET DESIGN, PROCESS PIPING DESIGN, PUMPS, COMPRESSORS, AND PROCESS SAFETY INCIDENTS

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.

A SELECTED BIBLIOGRAPHY ON ALCOHOL FUELS

(1901 THROUGH NOVEMBER 1981)

HISTORY, EXPLORATION & EXPLOITATION OF OIL AND GAS

Springer This edited volume discusses scientific and technological aspects of the history of the oil and gas industry in national and international contexts. The search for oil for industrial uses began in the nineteenth century, the first drills made in Azerbaijan and the United States. This intense search for a substance to become one of the most important energy sources was, many times, based on skill as well as luck, resulting in knowledge and the development of prospecting and exploration technologies. The demand for oil improved expertise in geological science, in areas such as micropaleontology, stratigraphy or sedimentology and informed different disciplines such as geophysics. These contributions made possible not only the discovery of new oil fields but also new applications and methods of exploration. Beyond the scientific and technological aspects, an industry that grew to such considerable size also impacted the political, economic, social, cultural, environmental and diplomatic issues in history. The book approaches these changes in different scales, countries, areas, and perspectives. This edited book appeals to researchers, student, practitioners in various fields from geology and geophysics to history. It is also an important resource for professionals in the oil and gas industry.