

Oilfield Processing Vol 2 Crude Oil

A comprehensive volume on interfacial catalysis, this book includes contributions from an international group of specialists in chemistry, environmental science, informatics, physiology, nuclear energy, and physics. The editor has organized the material into the main topics of fundamental characteristics, phase transfer catalysis, reversed micelles. This edited book explores the use of surfactants in upstream exploration and production (E&P). It provides a molecular, mechanistic and application-based approach to the topic, utilising contributions from the leading researchers in the field of organic surfactant chemistry and surfactant chemistry for upstream E&P. The book covers a wide range of problems in enhanced oil recovery and surfactant chemistry which have a large importance in drilling, fracking, hydrate inhibition and conformance. It begins by discussing the fundamentals of surfactants and their synthesis. It then moves on to present their applicability to a variety of situations such as gas injections, shale swelling inhibition, and acid stimulation. This book presents research in an evolving field, making it interesting to academics, postgraduate students, and experts within the field of oil and gas.

This book is the latest in a series of respected volumes that provides an up-to-date review of some of the major chemistry topics related to the oil and gas industry. Divided into four sections, it looks in turn at the latest developments in environmental issues, new technology, applications and flow assurance. This reflects the increasingly important role for chemical technologies in offshore, deep water and challenging environments, allied to developments of low environmental impact chemistry. Regulatory strategies are also discussed, from both the governmental and operational perspective. Overall, Chemistry in the Oil Industry VII presents the latest information on developments in the modern oil industry, which will have an impact on future cost-effectiveness and efficiency. It will be a valuable resource for professionals and consultants within the industry, as well as government agencies and laboratory staff.

There is a renaissance that is occurring in chemical and process engineering, and it is crucial for today's scientists, engineers, technicians, and operators to stay current. With so many changes over the last few decades in equipment and processes, petroleum refining is almost a living document, constantly needing updating. With no new refineries being built, companies are spending their capital re-tooling and adding on to existing plants. Refineries are like small cities, today, as they grow bigger and bigger and more and more complex. A huge percentage of a refinery can be changed, literally, from year to year, to account for the type of crude being refined or to integrate new equipment or processes. This book is the most up-to-date and comprehensive coverage of the most significant and recent changes to petroleum refining, presenting the state-of-the-art to the engineer, scientist, or student. Useful as a textbook, this is also an excellent, handy go-to reference for the veteran engineer, a volume no chemical or process engineering library should be without. Written by one of the world's foremost authorities, this book sets the standard for the industry and is an integral part of the petroleum refining renaissance. It is truly a must-have for any practicing engineer or student in this area. This book presents new insights into the development of different aspects of petroleum science and engineering. The book contains 19 chapters divided into two main sections: (i) Exploration and Production and (ii) Environmental Solutions. There are 11 chapters in the first section, and the focus is on the topics related to exploration and production of oil and gas, such as characterization of petroleum source rocks, drilling technology, characterization of reservoir fluids, and enhanced oil recovery. In the second section, the special emphasis is on waste technologies and environmental cleanup in the downstream sector. The book written by numerous prominent scholars clearly shows the necessity of the multidisciplinary approach to sustainable development in the petroleum industry and stresses the most updated topics such as EOR and environmental cleanup of fossil fuel wastes.

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

Increased research is going on to explore the new cleaner options for the utilization of natural resources. This book aims to provide the scientific knowhow and orientation in the area of the emerging technologies for utilization of natural resources for sustainable development to the readers. The book includes production of energy and lifesaving drugs using natural resources as well as reduction of wastage of resources like water and energy for sustainable development in both technological as well as modeling aspects.

Everette Lee DeGolyer wore many hats—and he wore them with distinction. Though not a geophysicist, he helped make geophysics central to oil exploration. Though not a politician, he played an important role in the national politics of energy. Though trained as a geologist, he became an important business executive. DeGolyer left his stamp on oil exploration and his name on a number of philanthropic institutions, including the DeGolyer Library at Southern Methodist University. This account of DeGolyer's life, at once readable and yet authoritative, covers the period from his training with the United States Geological Survey in the American West, to his geological exploration of Mexico during the Revolution of the 1910s, his pioneering investment in geophysical prospecting technologies, and his work on behalf of the United States government in World War II, including a ground-breaking mission to the Middle East. Houston Mount develops his account of the career of Everette Lee DeGolyer in a way that provides a useful lens through which to examine the rising fortunes of earth scientists in the oil industry and in government—a

process for which DeGolyer's spectacular career was both an exemplar and a catalyst.

Kazakhstan has embarked upon an ambitious reform agenda to realise its aspiration of becoming one of the top 30 global economies by 2050. The country's economy and society have undergone deep transformations since independence.

Oil field chemicals are gaining increasing importance, as the resources of crude oil are decreasing. An increasing demand of more sophisticated methods in the exploitation of the natural resources emerges for this reason. This book reviews the progress in the area of oil field chemicals and additives of the last decade from a rather chemical view. The material presented is a compilation from the literature by screening critically approximately 20,000 references. The text is ordered according to applications, just in the way how the jobs are emerging in practice. It starts with drilling, goes to productions and ends with oil spill. Several chemicals are used in multiple disciplines, and to those separate chapters are devoted. Two index registers are available, an index of chemical substances and a general index. * Gives an introduction to the chemically orientated petroleum engineer. * Provides the petroleum engineer involved with research and development with a quick reference tool. * Covers interdisciplinary matter, i.e. connects petroleum recovery and handling with chemical aspects.

Stresses the Potential Applications of Biosurfactants in Various Industries Environmental concerns and a demand for sustainable chemical production have become important issues in recent years. As a result, microbial biosurfactant-producing systems are gaining momentum as potential replacements for chemical surfactants. *Biosurfactants: Production and Utilization—Processes, Technologies, and Economics* explores the production, utilization, and industrial/economic use of biosurfactants in modern biotechnology. This book represents comprehensive material developed by contemporary experts in the field. Focusing on research and developments within the last 20 years, it highlights relevant changes in the industry. It provides a detailed account of the current applications of biosurfactants, considers the potential for further environmental, biological, and industrial applications, and concentrates on surfactants and organisms with possibilities for future use. Emphasizes Process Scale-Up and Commercialization Factoring in the industrial application of biosurfactant production based on renewable resources, the book determines how biosurfactants can enhance or replace the properties of chemically synthesized surface-active agents. It discusses moving beyond the laboratory scale of research and development and on to the industrial scale of commercial interest. The book consists of 17 chapters and features expert authors discussing topics that include: Understanding the regulatory processes controlling the production of biosurfactants Strategies for feasible commercial biosurfactant production Examples of cost analysis based on published information The viability of industrial applications in food, cosmetics, and pharmaceuticals Patents for future trends *Biosurfactants: Production and Utilization—Processes, Technologies, and Economics* contains special sections devoted to the overview and evaluation of specific patents relating to biosurfactants, and methods for production of biosurfactants on a laboratory and industrial/commercial scale. It also presents novel and proven applications for biosurfactants from a number of biotechnology laboratories and research facilities around the world. In addition, it introduces the reader to a variety of real-world industry techniques readily applicable for practical use.

Many oil production processes present a significant challenge to the oil and gas field processing facilities and equipment design. The optimization of the sequential operations of handling the oil–gas mixture can be a major factor in increasing oil and gas production rates and reducing operating costs. *Petroleum and Gas Field Processing* provides an all-inclusive guide to surface petroleum operations and solves these and other problems encountered in the field processing of oil and gas. Fully revised and updated to reflect major changes over the past decade or so, this second edition builds on the success attained in the first edition. It delivers an expanded and updated treatment that covers the principles and procedures related to the processing of reservoir fluids for the separation, handling, treatment, and production of quality petroleum oil and gas products. With five new chapters, this second edition covers additional subjects, in particular natural gas, economics and profitability, oil field chemicals, and piping and pumps. The book also contains worked-out examples and case studies from a variety of oil field operations.

Production chemistry issues result from changes in well stream fluids, both liquid and gaseous, during processing. Since crude oil production is characterized by variable production rates and unpredictable changes to the nature of the produced fluids, it is essential for production chemists to have a range of chemical additives available for rectifying issues that would not otherwise be fully resolved. Modern production methods, the need to upgrade crude oils of variable quality, and environmental constraints demand chemical solutions. Thus, oilfield production chemicals are necessary to overcome or minimize the effects of the production chemistry problems. *Production Chemicals for the Oil and Gas Industry, Second Edition* discusses a wide variety of production chemicals used by the oil and gas industry for down-hole and topside applications both onshore and offshore. Incorporating the large amount of research and applications since the first edition, this new edition reviews all past and present classes of production chemicals, providing numerous difficult-to-obtain references, especially SPE papers and patents. Unlike other texts that focus on how products perform in the field, this book focuses on the specific structures of chemicals that are known to deliver the required or desired performance—information that is very useful for research and development. Each updated chapter begins by introducing a problem, such as scale or corrosion, for which there is a production chemical. The author then briefly discusses all chemical and nonchemical methods to treat the problem and provides in-depth descriptions of the structural classes of relevant production chemicals. He also mentions, when available, the environmental properties of chemicals and whether the chemical or technique has been successfully used in the field. This edition includes two new chapters and nearly 50 percent more references.

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

A carefully selected compilation of the most relevant articles from the online edition of "ULLMANN's Encyclopedia of Industrial Chemistry", this three-volume handbook contains a wealth of information on energy sources, energy generation and storage, fossil and renewable fuels as well as the associated processing technology. Fossil as well as renewable fuels, nuclear technology, power generation and storage technologies are treated side by side, providing a unique overview of the entire global energy industry. New or updated articles include such classical topics as coal technologies, oil and gas, as well as cutting-edge technologies, such as biogas, thermoelectricity and solar technology. The result is an in-depth survey of industrial-scale energy technology.

The book includes: Basic information of oil and gas treatment, including process calculations. Gas properties, gas calculations, and process vessel sizing and selection. Operation and design of separators, heater treaters, desalters, stabilization and sweetening facilities. Basic of fluid measurement, process instrumentation and control, and pressure relief systems. The book is very useful for Engineers, chemists, and technicians in oil and gas production and processing sections.

Oilfield Processing of Petroleum Crude Oil PennWell Books, LLC

The latest edition of this best-selling title is updated and expanded for easier use by engineers. New to this edition is a section on the fundamentals of surface production operations taking up topics from the oilfield as originally planned by the authors in the first edition. This information is necessary and endemic to production and process engineers. Now, the book offers a truly complete picture of surface production operations, from the production stage to the process stage with applications to process and production engineers. New in-depth coverage of hydrocarbon characteristics, the different kinds of reservoirs, and impurities in crude Practical suggestions help readers understand the art and science of handling produced liquids Numerous, easy-to-read figures, charts, tables, and photos clearly explain how to design, specify, and operate oilfield surface production facilities

A prominent linchpin in world politics and in security policies world over, oil and gas have tremendous value in both, the political and economical sectors of global relations, business establishments and policy. Regardless of whether one is a novice to a given field, or a well accomplished veteran in the field, there is a need for the continued engagement with the basics that underlie the core subjects. With that in mind, the Fundamentals of Oil and Gas is a perfect primer for the first-timer in the field, while also a copious text to help a seasoned veteran stay abreast with the nuances of the world of Oil and Gas.

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

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

Reflecting the many changes in the technology of the oil and gas industry since its last publication in 1984, this new edition of Modern Petroleum Technology is the most authoritative and thoroughly up-to-date review of technical expertise employed across the whole of the international oil and gas industry. Written by leading international experts from industry and academia, all entries have been updated and many new entries have been added for this 6th edition. The work is divided into two volumes: Upstream and Downstream. Upstream examines the different stages of the exploration and production processes involved in the location and extraction of raw materials, including the latest applications employed in modern seismic technology and the production of heavy oils. Downstream covers the process of refining the raw material, and producing and supplying the end product, from refineries to service stations. Both volumes deal with all aspects of their area of petroleum technology, from the innovations in technology to the environmental issues surrounding its practical application. Modern Petroleum Technology considers the current challenges and opportunities presented by new technology, enabling everyone in the industry, from the busy chief executive to the petroleum engineer, to stay in touch with developments outside their own area of expertise. Modern Petroleum Technology's concise and comprehensive overview will also be of special value to analysts, strategists, lecturers and students, oil and gas consultants, and legal and financial service providers.

The immediate product extracted from oil and gas wells consists of mixtures of oil, gas, and water that is difficult to transport, requiring a certain amount of field processing. This reference analyzes principles and procedures related to the processing of reservoir fluids for the separation, handling, treatment, and production of quality petroleum oil and gas products. It details strategies in equipment selection and system design, field development and operation, and process simulation and control to increase plant productivity and safety and avoid losses during purification, treatment, storage, and export. Providing guidelines for developing efficient and economical treatment systems, the book features solved design examples that demonstrate the application of developed design equations as well as review problems and exercises of key engineering concepts in petroleum field development and operation.

Details the proper methods to assess, prevent, and reduce corrosion in the oil industry using today's most advanced technologies This book discusses upstream operations, with an emphasis on production, and pipelines, which are closely tied to upstream operations. It also

examines protective coatings, alloy selection, chemical treatments, and cathodic protection—the main means of corrosion control. The strength and hardness levels of metals is also discussed, as this affects the resistance of metals to hydrogen embrittlement, a major concern for high-strength steels and some other alloys. It is intended for use by personnel with limited backgrounds in chemistry, metallurgy, and corrosion and will give them a general understanding of how and why corrosion occurs and the practical approaches to how the effects of corrosion can be mitigated. Metallurgy and Corrosion Control in Oil and Gas Production, Second Edition updates the original chapters while including a new case studies chapter. Beginning with an introduction to oilfield metallurgy and corrosion control, the book provides in-depth coverage of the field with chapters on: chemistry of corrosion; corrosive environments; materials; forms of corrosion; corrosion control; inspection, monitoring, and testing; and oilfield equipment. Covers all aspects of upstream oil and gas production from downhole drilling to pipelines and tanker terminal operations Offers an introduction to corrosion for entry-level corrosion control specialists Contains detailed photographs to illustrate descriptions in the text Metallurgy and Corrosion Control in Oil and Gas Production, Second Edition is an excellent book for engineers and related professionals in the oil and gas production industries. It will also be an asset to the entry-level corrosion control professional who may have a theoretical background in metallurgy, chemistry, or a related field, but who needs to understand the practical limitations of large-scale industrial operations associated with oil and gas production.

Every oil and gas refinery or petrochemical plant requires sufficient utilities support in order to maintain a successful operation. A comprehensive utilities complex must exist to distribute feedstocks, discharge waste streams, and remains an integrated part of the refinery's infrastructure. Essentials of Oil and Gas Utilities explains these support systems and provides essential information on their essential requirements and process design. This guide includes water treatment plants, condensate recovery plants, high pressure steam boilers, induced draft cooling towers, instrumentation/plant air compressors, and units for a refinery fuel gas and oil systems. In addition, the book offers recommendations for equipment and flow line protection against temperature fluctuations and the proper preparation and storage of strong and dilute caustic solutions. Essentials of Oil and Gas Utilities is a go-to resource for engineers and refinery personnel who must consider utility system design parameters and associated processes for the successful operations of their plants. Discusses gaseous and liquid fuel systems used to provide heat for power generation, steam production and process requirements Provides a design guide for compressed air systems used to provide air to the various points of application in sufficient quantity and quality and with adequate pressure for efficient operation of air tools or other pneumatic devices. Explains the water systems utilized in plant operations which include water treatment systems or raw water and plant water system; cooling water circuits for internal combustion engines, reciprocating compressors, inter-cooling and after-cooling facilities; and "Hot Oil" and "Tempered Water" systems

This book addresses corrosion problems and their solutions at facilities in the oil refining and petrochemical industry, including cooling water and boiler feed water units. Further, it describes and analyzes corrosion control actions, corrosion monitoring, and corrosion management. Corrosion problems are a perennial issue in the oil refining and petrochemical industry, as they lead to a deterioration of the functional properties of metallic equipment and harm the environment – both of which need to be protected for the sake of current and future generations. Accordingly, this book examines and analyzes typical and atypical corrosion failure cases and their prevention at refineries and petrochemical facilities, including problems with: pipelines, tanks, furnaces, distillation columns, absorbers, heat exchangers, and pumps. In addition, it describes naphthenic acid corrosion, stress corrosion cracking, hydrogen damages, sulfidic corrosion, microbiologically induced corrosion, erosion-corrosion, and corrosion fatigue occurring at refinery units. At last, fouling, corrosion and cleaning are discussed in this book.

Covers process descriptions, design method, operating procedures, and troubleshooting in great detail. This text is the definitive source on its topic and contains numerous diagrams and appendices, as well as case histories and review questions with numerical problems.

Save Money, Time, and Lives with the Real-World Oil & Gas Experience of Others. Learning the Hard Way in the Oilfield can Cost You Millions, sometimes Billions of Dollars in addition to Injury and Loss of Life. Cut Through the Noise to Focus on the Most Critical Aspects of Working in the Oil and Gas Business. Based on over 1,000 Oil and Gas Situations involving Drilling, Cementing, Fracking, Wireline, Coil Tubing, Snubbing, Running Tools, Welding, Production, Workover, Logging, Trucking, Geology, Land, Engineering, Resource Development, Executive Management and much, much more. Expand Your Value Creation Opportunities by Learning from the Real-World Experience of Others. Whether you work in the office or in the field, work as a Company Man, Engineer, Driller, Tool Pusher, Roughneck, Geologist, Landman, Truck Driver, Frac Hand, Treater, Cementer, Lawyer, Flowback Hand, Welder, Geophysicist, Snubber, Pumper, Equipment Operator, Derrick Man, Mechanic, Petrophysicist, Roustabout, Manager, Director, VP, or Executive, consider adding Oilfield Survival Guide to your toolbox of knowledge. In other words, if you work hard for your money in the oil business, this book is for you. The oil & gas industry is one of the most capital-intensive businesses today. As a result, mistakes/situations can be expensive, in addition to injury and loss of life. To prevent undesirable situations, Oilfield Survival Guide was created, based on over 1,000 oil & gas situations. The ultimate guide for all oil and gas situations: ? Tactics ? Procedures ? Fatalities ? Short Stories ? Train Wrecks ? Disaster Avoidance ? Court Cases ? Life Savings Skills ? Checklists ? Troubleshooting ? Problem Job Prevention ? Oilfield Survival Guide is the ultimate oil industry resource to help manage oilfield risk and avoid mistakes by increasing your oil and gas knowledge and intelligence, utilizing a variety of methods, including: Tactics: Short and to the point guidelines to reduce risk and instill work principles to be successful in the oil industry, from the field to the office. Short Stories: Experience from the mistakes of others. Fatalities: Detailed analysis of oil and gas tragedies. Court Cases: Jury trials, expert witness testimony, and legal opinions on a variety of oil and gas cases. Procedures: Step-by-step process to create oilfield procedures and checklists, along with multiple examples. Operations Analysis: Oil and gas operations post-mortem, highlighting key learnings, practical knowledge, useful tips, and best practices. Over 1,000 oil and gas situations analyzed to create Oilfield Survival Guide.

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.

This book contains papers presented at the International Conference on Cognitive based Information Processing and Applications (CIPA) held during August 21, 2021, online conference (since COVID 19), which is divided into a 2-volume book. The papers in the second volume represent the various technological advancements in network information

processing, graphics and image processing, medical care, machine learning, smart cities. It caters to postgraduate students, researchers, and practitioners specializing and working in the area of cognitive-inspired computing and information processing.

This book, *The Science and Technology of Unconventional Oils: Finding Refining Opportunities*, intends to report the collective physical and chemical knowledge of unconventional oils (heavy, extra-heavy, sour/acid, and shale oil) and the issues associated with their refining for the production of transportation fuels. It will focus on the discussion of the scientific results and technology activities of the refining of unconventional oils. The presence of reactive and refractory compounds and components that negatively impact refining processing (the "bad actors") are discussed and analyzed. The commercially available technologies, with their reported improvements and emerging ideas, concepts, and technologies, are described. This comprehensive overview constitutes the basis for establishing technology gaps, and in return sets the science and technology needs to be addressed in the future. In summary, this book incorporates the relevant knowledge of processing unconventional crude oils and of the "Bottom-of-the-Barrel" fraction, describing the related commercially available and emerging technologies to contribute to the identification of existing gaps. Relates physicochemical properties and phenomenological behavior of unconventional oils to refining challenges Describes commercially available technologies and the problems they solve Lists recent improvements in various processes and identifies technology gaps Explains emerging new refining technologies and the problems they solve Discusses future needs and challenges, and suggests further research and development needs

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