
Petroleum and Gas Field Processing

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 process selection for improving productivity and safety and avoiding 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.

Petroleum Engineering Handbook

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 refi nability of the various feedstocks; (3) thermal processes versus hydroprocessing; and (4) the influence of refining on the environment.

The Sea of Lost Opportunity

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 examples and diagrams, which enable readers to use today's simulation-software packages. The handbook also covers off-site 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. A 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 refiners and engineering firms performing support functions or construction.

Petroleum Production Engineering

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.

Springer Handbook of Petroleum Technology

This is the most comprehensive book on the subject of offshore mega project commissioning ever written. The book’s primary focus is at preventing the industry’s upward trending schedule and cost overruns. It provides specific experience figures and facts, as well as extensive advice on how to apply strategic and tactical measures to ensure a successful project completion. It covers not only all the “standard” important aspects of commissioning, but also paramount strategic elements that need to be in place to ensure a robust and streamlined project process. Special focus is on maximizing up-front planning as well as continuous risk evaluation in all phases of a project. The book should be mandatory on every project manager’s, commissioning managers’ and construction managers’ desk, as well as in all project management students’ curriculums.

Handbook of Natural Gas Transmission and Processing

Second Edition, updates both the new and veteran engineer on how the natural gas production fundamentals to solve real-world challenges with modern technology. Enhances to include equations and references with today’s more complex systems, such as working with horizontal wells, workovers, and an entire new section of chapters dedicated to flow assurance, this go-to reference remains the most all-inclusive source for answering all upstream and midstream production issues. Completely updated with five sections covering the entire production spectrum, including well productivity, equipment and facilities, well stimulation and workover, artificial lift methods, and flow assurance, this updated edition continues to deliver the most practical applied production techniques, answers, and methods for today’s production engineer and manager. In addition, updated Excel spreadsheets that cover the most critical production equations from the book are included for download. Updated to cover today’s critical production challenges, such as flow assurance, horizontal and multi-lateral wells, and workovers Guides users from theory to practical application with the help of over 50 online Excel spreadsheets that contain basic production equations, such as gas lift potential, multilateral gas well deliverability, and production forecasting Delivers an all-inclusive product with real-world answers for training or quick look up solutions for the entire petroleum production spectrum.

Unconventional Oil and Gas Resources Handbook | “Volume IV, Production operations engineering” provides readers with up-to-date information on design, equipment selection, and operation procedures for most oil and gas wells. Chapters cover three main topic areas: well completions, problems caused by formation damage, and artificial lift—a major concern for production engineers.

Well Productivity Handbook | Well Testing is recognised by many operating oil and gas companies to be the most hazardous operation they routinely undertake. Therefore, it is of great importance that such operations are extremely well planned and executed. This handbook covers all the major “Operational Aspects of
Handbook An Introduction To Oil

Standard Handbook of Petroleum and Natural Gas Engineering: A practical treatment of power system design within the oil, gas, petrochemical and offshore industries. These have significantly different characteristics to large-scale power generation and long distance public utility industries. Developed from a series of lectures on electric power systems given to oil company staff and university students, Sheldrake's work provides a careful balance between sufficient mathematical theory and comprehensive practical application knowledge. Features of the text include: Comprehensive handbook detailing the application of electrical engineering to the oil, gas and petrochemical industries Practical guidance to the electrical systems equipment used on offshore production platforms, drilling rigs, pipelines, refineries and chemical plants Summaries of the necessary theories behind the design together with practical guidance on selecting the correct electrical equipment and systems required Presents numerous 'rule of thumb' examples enabling quick and accurate estimates to be made Provides worked examples to demonstrate the topics and data Each chapter contains practical revision and reference sections prior to concentrating on the practical aspects of power engineering including the use of computer modelling Offers numerous references to other texts, published papers and international standards for guidance and as sources of further reading material

Natural Gas Engineering Handbook Shale Oil and Gas Handbook: Theory, Technologies, and Challenges provides users with information on how shale oil and gas exploration has revolutionized today’s energy industry. As activity has boomed and job growth continues to increase, training in this area for new and experienced engineers is essential. This book provides comprehensive information on both the engineering design and research aspects of this emerging industry. Covering the full spectrum of basic definitions, characteristics, testing techniques, and processing and extraction technologies, the book is a great starting point to educate oil and gas personnel on today’s shale industry. Critical topics covered include characterization of shale gas, theory and methods, typical costs, and obstacles for exploration and drilling, R&D and technology development in shale production, EOR methods in shale oil reservoirs, and the current status and impending challenges for shale oil and gas, including the inevitable future prospects relating to worldwide development. Reveals all the basic information needed to quickly understand today’s shale oil and gas industry, including advantages and disadvantages, equipment and costs, flow diagrams, and processing stages. Evensyly distributes coverage between oil and gas into two parts, as well as upstream and downstream content. Provides a practical handbook with real-world case studies and problem examples, including formulas and calculations

Handbook of Pollution Prevention and Cleaner Production Vol. 1: Best Practices in the Petroleum Industry Written by an internationally-recognized team of natural gas industry experts, the fourth edition of Handbook of Natural Gas Transmission and Processing is a unique, well-researched, and comprehensive work on the design and operation aspects of natural gas transmission and processing. Six new chapters have been added to include detailed discussion of the thermodynamic and energy efficiency of relevant processes, and recent developments in treating super-rich gas, high CO2 content gas, and high nitrogen content gas with other contaminants. The new material describes technologies for processing today’s unconventional gases, providing a fresh approach in solving today’s gas processing challenges including greenhouse gas emissions. The updated edition is an excellent platform for gas processors and educators to understand the basic principles and innovative designs necessary to meet today’s environmental and sustainability requirement while delivering acceptable project economics. Covers all technical and operational aspects of natural gas transmission and processing. Provides pivotal updates on the latest technologies, applications, and solutions. Helps to understand today’s natural gas resources, and the best gas processing technologies. Offers design optimization and advice on the design and operation of gas plants.

Nontechnical Guide to Petroleum Geology, Exploration, Drilling, and Production This new Handbook provides a series of reference guides to cleaner production methods, technologies, and practices for key industry sectors. Each volume covers, for each industry sector: * the manufacturing technologies * waste management * pollution methods for estimating and reporting emissions * treatment and control technologies * worker and community health risk exposures * cost data for pollution management * cleaner production and prevention alternatives Best Practices in the Petroleum Industry provides an overview of refineries and gas plant operations and identifies the key Environmental Aspects, supported by case studies of major incidents that resulted in catastrophic releases of oil and refined products, and a critical assessment of the methodology and calculation procedures that the industry relies on in preparing emissions inventories. The authors offer alternative approaches to providing more accurate emissions estimates, and guidelines on cleaner production and pollution prevention practices for improving overall environmental performance. Overview of the key Environmental Aspects of gas plant operations and refineries Case studies of major incidents that resulted in catastrophic releases of oil and refined products, including the Santa Barbara oil spill of 1969 and the EXXON Valdez Incident Provides guidelines on cleaner production and pollution prevention practices for improving overall environmental performance

Handbook of Materials Failure Analysis with Case Studies from the Oil and Gas Industry Presents an up-to-date description of current and new hydraulic fracturing processes Details Emerging Technologies such as Fracture Treatment Design, Open Hole Fracturing, Screenless Completions, Sand Control, Fracturing Completion and Productivity Covers Environmental Impact issues including Geologic Disturbance; Chemicals used in Fracturing; General Chemicals; Toxic Chemicals; and Air, Water, Land, and Health impacts Provides many process diagrams as well as tables of feedstocks and their respective products

Fundamentals of Oil & Gas Industry for Beginners This is a major new handbook that covers hundreds of subjects that cross numerous industry sectors; however, the handbook is heavily slanted to oil and gas environmental management, control and pollution prevention and energy efficient practices. Multimedia pollution technologies are covered: air, water, solid waste, energy. Students, technicians, practicing engineers, environmental managers, chemical engineers, petroleum engineers, and environmental attorneys are all professionals who will benefit from this major new reference source. The handbook is organized into three parts. Part A provides an extensive compilation of abbreviations and concise glossary of pollution control and engineering terminology. More than 400 terms are defined. The section is intended to provide a simple look-up guide to confusing terminology used in the regulatory field, as well as industry jargon. Cross referencing between related definitions and acronyms are provided to assist the user. Part B provides physical properties and chemical safety information. This part is not intended to be exhaustive; however it does provide supplemental information that is useful to a number of the subject areas covered in the main body of the book. The comprehensive subject entries for a wide range of pollution controls, technologies, pollution prevention practices and tools, computational methods for preparing emission estimates and emission inventories and much more. More than 100 articles have been prepared by the author, providing a concise overview of each subject, supplemented by sample calculation methods and examples where appropriate, and references. Subjects included are organized and presented in a macrofied format to assist a user in grasping the subject information. The book provides a summary of certain calculations or estimates as in cases pertaining to overhead, stripping, steam injection or the processes of pollution controls or in preparing emissions inventories for reporting purposes, and recommended references materials and web sites for more in-depth information, data or computational tools. Each subject entry provides a working overview of the technology, practice, piece of equipment, regulation, or other relevant issue as it pertains to pollution control and management. Cross referencing between related subjects is included to assist the reader to gain as much of a practical level of knowledge.

The Oil & Gas Industry Well Productivity Handbook: Vertical, Fractured, Horizontal, MUlti-lateral, MUlti-fractured, and Radial-Fractured Wells, Second Edition delivers updated examples and solutions for oil and gas well management projects. Starting with the estimation of fluid and reservoir properties, the content then discusses the modeling of inflow performance in wells producing different types of fluids. In addition, it describes the principles of well productivity analysis to show how to predict productivity of wells with simple trajectory. Then advancing into more complex selection of well designs, the book covers how to predict productivity for more challenging wells, such as multi-lateral, multi-fractured and radial-fractured. Rounding out with sample problems to solve and future references to pursue, this book continues to give reservoir and production engineers the tools needed to tackle the full spectrum of completion types. Covers the full range of completion projects, from simple to unconventional, including multi-layer and multi-fractured well deliverability. Includes practical examples to calculate, future references, and summaries at the end of every chapter.
Commissioning of Offshore Oil and Gas Projects This book covers "how oil & gas is formed; how to find commercial quantities; how to drill, evaluate, and complete a well; all the way through production and improved oil recovery." - back cover.

Pollution Control Handbook for Oil and Gas Engineering

Handbook of Offshore Oil and Gas Operations

Handbook of Electrical Engineering The objective of this practical oil and gas piping handbook is to facilitate project management teams of oil and gas piping related construction projects to understand the key requirements of the discipline and to equip them with the necessary knowledge and protocol. It provides a comprehensive coverage on all the practical aspects of piping related material sourcing, fabrication essentials, welding related items, NDT activities, erection of pipes, pre-commissioning, commissioning, post-commissioning, project management and importance of ISO Management systems in oil and gas piping projects. This handbook consists of historical process application of protocols in the piping industry. Key aspects of this handbook is that the technical information and the format provided are practically from real time oil and gas piping projects; hence, the application of this information is expected to enhance the credibility of the contractors in the eyes of the clients and to some extent, simplify the existing operations. Another important highlight is that it holistically covers the stages from the raw material to project completion to handover and beyond. This will help the oil and gas piping contractors to train their project management staff to follow the best practices in the oil and gas industry. Furthermore, this piping handbook provides an important indication of the important project-related factors (hard factors) and organizational-related factors (soft factors) to achieve the desired project performance dimensions, such as timely completion, cost control, acceptable quality, safe execution and financial performance. Lastly, the role of ISO management systems, such as ISO 9001, ISO 14001 and OHSAS 18001 in construction projects is widely known across the industry; however, oil and gas specific ISO quality management systems, such as ISO 29001, and project specific management systems, such as ISO 21500, are not widely known in the industry, which are explained in detail in this handbook for the benefit of the oil and gas construction organizations. Features: Covering the stages from the raw material to project material, to handover and beyond Providing practical guidelines to oil and gas piping contractors for training purposes and best practices in the oil and gas industry. Emphasizing project-related factors (hard factors) and organizational-related factors (soft factors) with a view to achieve the desired project performance. Highlighting the roles of ISO management systems in oil and gas projects.

The Petroleum Engineering Handbook: Sustainable Operations Working Guide to Petroleum and Natural Gas Production Engineering provides an introduction to key concepts and processes in oil and gas production engineering. It begins by describing correlation and procedures for predicting the physical properties of natural gas and oil. These include compressibility factor and phase behavior, field sampling process and laboratory measurements, and prediction of a vapor-liquid mixture. The book discusses the basic parameters of multiphase fluid flow, various flow regimes, and multiphase flow models. It explains the nature, flow performance of oil, gas, and the mixture. The final chapter covers the design, use, function, operation, and maintenance of oil and gas production facilities; the design and construction of separators; and oil and gas separation and treatment systems. Evaluate well inflow performance. Guide to properties of hydrocarbon mixtures. Evaluate gas production and processing facilities

Handbook of Natural Gas Transmission and Processing 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. A N A-Z list of raw materials and their properties are presented along with a comprehensive report 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, solvency 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

Working Guide to Petroleum and Natural Gas Engineering These days, one would have a difficult time picking up a newspaper, or watching a newscast that did not have a lead story dealing with some aspect of oil. From instability in the Middle East, to stock market crashes and concerns over the health of the world economy, to wars that seem to break out unexpectedly around the world, to discussions of global warming, and even speculation over the fate of mankind, oil is usually lurking somewhere in the background. To many, oil markets and their linkages to a whole spectrum of events remain something of a mystery. Unfortunately, most of the easily obtained information on oil is deeply flawed. Whole web-conspiracy sites depict ruthless insiders and reckless dictators manipulating energy markets at will. The 30 essays in this volume, written by the leading experts in the field, attempt to set the record straight. While their assessments may lack the sensationalism of many popular pundits, serious readers will find their insights invaluable in the years to come in providing a framework for understanding many of the events of the day. The volume is divided into sections. Part I provides a broad overview of the political dimensions underlying the supply of oil. Some of the key questions addressed include: is the world running out of oil? And if so, is the cause physical scarcity or political/policy failure? Why are many of the oil-producing countries in the developing world so unstable? Can oil markets be made to provide more stability to the world system? Part II examines some of the political responses to oil-related developments. Here, the key questions concern the role of the political process in the development of alternative sources of energy. The various means through which countries approach their energy security is assessed, as is the problem of climate change. The section ends with the provocative question, do governments really need to go to war for oil? Oil production, energy markets, and the political environment produce distinct regional patterns. Part III examines oil and political power in Africa, Latin America, the Middle East and South-East Asia. Part IV expands some of the main regional themes through a series of case studies on specific countries: Iran, Iraq, Saudi Arabia, Egypt, Russia, and Brazil. A final section looks to the future: will the oil curse continue for many countries? How will the growth and expansion of China affect oil prices and availability? Will oil-based sovereign wealth funds contribute to global stability or will they create increased political tensions between consuming and producing countries? Will volatile oil markets undermine the US dollar as well as the global financial system? Perhaps appropriately, the volume ends with an assessment of the future of oil in a carbon constrained world. All in all, the essays in this volume cover the whole spectrum of the politics of oil. Hopefully they will help shed light on this important topic. The book does not represent any particular political or ideological position. Instead, each author has sought to objectively seek a deeper understanding as to the complexity and subtlety of forces that have all too often eluded policymakers around the world.

Shale Oil and Gas Handbook Joseph Hilyard's timely new book provides a broad perspective on the oil and gas industry, with primary attention to the United States. It takes the reader on a tour of the operations used to find and evaluate resources, and then to produce, store and deliver oil and gas. The book's main focus is primarily on the equipment and processes used in exploring new resources; evaluating promising formations; drilling wells; managing oil and gas production; converting oil and gas into products; and transporting oil and gas. Separate chapters address the evolution and current structure of the petroleum industry; oil and gas trading; and challenges likely to face the oil and gas industry in coming years. Three appendices define key industry terminology; suggest further reading on selected topics; and identify organizations that can provide more information.

Handbook of Industrial Hydrocarbon Processes 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
Handbook of Materials Failure Analysis: With Case Studies from the Oil and Gas Industry provides an updated understanding on materials failure in specific situations, a vital element in developing and engineering new alternatives. The handbook covers analysis of materials failure in the oil and gas industry, where a single failed pipe can result in devastating consequences for people, wildlife, the environment, and the economy of a region. The book combines introductory sections on failure analysis with numerous real world case studies of pipelines and other types of materials failure in the oil and gas industry, including joint failure, leakage in crude oil storage tanks, failure of glass fibre reinforced epoxy pipes, and failure of stainless steel components in offshore platforms, amongst others. Introduces readers to modern analytical techniques in materials failure analysis Combines foundational knowledge with current research on the latest developments and innovations in the field includes numerous compelling case studies of materials failure in oil and gas pipelines and drilling platforms.

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