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# Natural Gas Processing Principles And Technology Part I

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Offshore Processing of CO<sub>2</sub>-Rich Natural Gas with Supersonic Separator  
Hydrocarbon Exploration and Production  
Gas Processing  
Natural Gas Engineering and Safety Challenges  
Principles and Applications  
Sustainable Geoscience for Natural Gas SubSurface Systems  
Fischer-Tropsch Technology  
Standard Handbook of Petroleum and Natural Gas Engineering:  
Fundamentals of Natural Gas Processing, Third Edition  
Gas Dehydration Field Manual  
10-12 January, 2009 - Qatar  
Foundations and Prospects of the Process  
Advanced Membrane Science and Technology for Sustainable Energy and  
Environmental Applications  
Principles of Air and Gas Processing

Handbook of Natural Gas Transmission and Processing  
Fundamentals of Natural Gas Processing  
Advances in Natural Gas Technology  
Multiphase Sound Speed, CO<sub>2</sub> Freeze-Out and HYSYS Implementation  
Contamination Control in the Natural Gas Industry  
Industrial Gas Handbook  
Hydrates of Hydrocarbons  
Principles and Development  
Downstream Process, Analysis, Utilization and Safety  
Proceedings of the 1st Annual Gas Processing Symposium  
Advanced Natural Gas Engineering  
Nanotechnology in Oil and Gas Industries  
Principles and Practices  
Natural Gas Engineering Handbook  
Direct Methane to Methanol  
Handbook of Liquefied Natural Gas  
The Changing Landscape of Hydrocarbon Feedstocks for Chemical Production  
Risk Analysis for Prevention of Hazardous Situations in Petroleum and Natural Gas  
Engineering  
Implications for Catalysis: Proceedings of a Workshop

Handbook of Industrial Hydrocarbon Processes  
Environmental Aspects and Methods  
Gas Conditioning and Processing: The basic principles  
Natural Gas in Nontechnical Language  
Thermoplastic Foam Processing

*Natural Gas  
Processing  
Principles And  
Technology  
Part I*

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**ROBINSON OROZCO**

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**Offshore Processing of  
CO<sub>2</sub>-Rich Natural Gas  
with Supersonic  
Separator** Gulf

Professional Publishing  
This book provides a  
powerful source to  
develop new, rapid and

highly efficient materials  
for the application in  
various fields of oil and  
gas. It focuses on the  
synthesis,  
characterization and  
applications of various  
Nanomaterials, presenting  
the state-of-the-art in  
developments and  
innovations in  
nanocomposites. This  
book provides the  
complete practical and

theoretical information  
about the synthesis of  
nanoparticles with  
potential use in the field  
of oil and gas.  
*Hydrocarbon Exploration  
and Production* IGI Global  
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 CO<sub>2</sub> 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. *Gas Processing Handbook of Natural Gas Transmission and*

Processing Principles and Practices  
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  
Lulu.com

Natural gas is playing an increasing role in meeting world energy demands because of its abundance, versatility, and its clean burning nature. As a result, lots of new gas exploration, field development and production activities are under way, especially in places where natural gas until recently was labeled as “stranded . Because a

significant portion of natural gas reserves worldwide are located across bodies of water, gas transportation in the form of LNG or CNG becomes an issue as well. Finally natural gas is viewed in comparison to the recently touted alternatives. Therefore, there is a need to have a book covering all the unique aspects and challenges related to natural gas from the upstream to midstream and downstream. All these new issues have not been addressed in depth

in any existing book. To bridge the gap, Xiuli Wang and Michael Economides have written a new book called Advanced Natural Gas Engineering. This book will serve as a reference for all engineers and professionals in the energy business. It can also be a textbook for students in petroleum and chemical engineering curricula and in training departments for a large group of companies. Natural Gas Engineering and Safety Challenges BoD – Books on Demand This work studies the

predominant types and sources of industrial gas, their effects on the atmosphere, and related environmental concerns and issues. It goes on to define methods of determining gas properties and the various process types that are used for clean-up.

#### Principles and

#### Applications Elsevier

The demand for energy consumption is increasing rapidly. To avoid the impending energy crunch, more producers are switching from oil to natural gas. While natural

gas engineering is well documented through many sources, the computer applications that provide a crucial role in engineering design and analysis are not well published, and emerging technologies, such as shale gas drilling, are generating more advanced applications for engineers to utilize on the job. To keep producers updated, Boyun Guo and Ali Ghalambor have enhanced their best-selling manual, *Natural Gas Engineering Handbook*, to continue to

provide upcoming and practicing engineers the full scope of natural gas engineering with a computer-assisted approach. This must-have handbook includes: A focus on real-world essentials rather than theory Illustrative examples throughout the text Working spreadsheet programs for all the engineering calculations on a free and easy to use companion site Exercise problems at the end of every chapter, including newly added questions utilizing the spreadsheet

programs Expanded sections covering today's technologies, such as multi-fractured horizontal wells and shale gas wells *Sustainable Geoscience for Natural Gas SubSurface Systems* Notion Press  
As the cleanest source of fossil energy with the most advantageous CO2 footprint, natural gas continues to increase its share in the global energy market. This book provides state-of-the-art contributions in the area of gas processing. Special emphasis is given to

Liquid Natural Gas (LNG); the book also covers the following gas processing applications in parallel sessions: \* Natural Gas processing and treatment \* Gas To Power and water \* Gas To Liquid (GTL) \* Gas To Petrochemicals, including olefins, ammonia and methanol \* Provides a state-of-the-art review of gas processing technologies \* Covers design, operating tools, and methodologies \* Includes case studies and practical applications *Fischer-Tropsch*

*Technology Gulf Professional Publishing* 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

*Standard Handbook of Petroleum and Natural Gas Engineering: BoD - Books on Demand*

This book on hydrocarbon exploration and production is the first volume in the series

Developments in Petroleum Science. The chapters are: The Field Life Cycle, Exploration, Drilling Engineering,

Safety and The Environment, Reservoir Description, Volumetric Estimation, Field Appraisal, Reservoir Dynamic Behaviour, Well Dynamic Behaviour, Surface Facilities, Production Operations and Maintenance, Project and Contract Management, Petroleum Economics, Managing the Producing Field, and Decommissioning.

*Fundamentals of Natural Gas Processing, Third Edition* Gulf Professional Publishing  
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.

Gas Dehydration Field Manual

CRC Press  
Offering indispensable insight from experts in the field, *Fundamentals of Natural Gas Processing, Third Edition* provides an introduction to the gas industry and the processes required to convert wellhead gas into valuable natural gas and

hydrocarbon liquids products including LNG. The authors compile information from the literature, meeting proceedings, short courses, and their own work experiences to give an accurate picture of where gas processing technology stands today as well as to highlight relatively new technologies that could become important in the future. The third edition of this bestselling text features updates on North American gas processing and changing gas treating

requirements due to shale gas production. It covers the international nature of natural gas trade, LNG, economics, and more. To help nonengineers understand technical issues, the first 5 chapters present an overview of the basic engineering concepts applicable throughout the gas, oil, and chemical industries. The following 15 chapters address natural gas processing, with a focus on gas plant processes and technologies. The book contains 2 appendices. The first

contains an updated glossary of gas processing terminology. The second is available only online and contains useful conversion factors and physical properties data. Aimed at students as well as natural gas processing professionals, this edition includes both discussion questions and exercises designed to reinforce important concepts, making this book suitable as a textbook in upper-level or graduate engineering courses.

**10-12 January, 2009 - Qatar** CRC Press

Contamination Control in the Natural Gas Industry delivers the separation fundamentals and technology applications utilized by natural gas producers and processors. This reference covers principles and practices for better design and operation of a wide range of media, filters and systems to remove contaminants from liquids and gases, enabling gas industry professionals to fulfill diverse fluid purification requirements. Packed to cover practical technologies, diagnostics

and troubleshooting methods, this book provides gas engineers and technologists with a critical first-ever reference geared to contamination control. Covers contamination control methods and equipment specific to the natural gas industry Includes guidelines on fundamentals and real-world technologies used today Gives engineers better design and operation with rating methods, standards and case histories  
*Foundations and*

*Prospects of the Process*  
Gulf Professional Publishing  
Membrane materials allow for the selective separation of gas and vapour and for ion transport. Materials research and development continues to drive improvements in the design, manufacture and integration of membrane technologies as critical components in both sustainable energy and clean industry applications. Membrane utilisation offers process simplification and

intensification in industry, providing low-cost, and efficient and reliable operation, and contributing towards emissions reductions and energy security. Advanced membrane science and technology for sustainable energy and environmental applications presents a comprehensive review of membrane utilisation and integration within energy and environmental industries. Part one introduces the topic of membrane science and engineering, from the

fundamentals of membrane processes and separation to membrane characterization and economic analysis. Part two focuses on membrane utilisation for carbon dioxide (CO<sub>2</sub>) capture in coal and gas power plants, including pre- and post-combustion and oxygen transport technologies. Part three reviews membranes for the petrochemical industry, with chapters covering hydrocarbon fuel, natural gas and synthesis gas processing, as well as advanced

biofuels production. Part four covers membranes for alternative energy applications and energy storage, such as membrane technology for redox and lithium batteries, fuel cells and hydrogen production. Finally, part five discusses membranes utilisation in industrial and environmental applications, including microfiltration, ultrafiltration, and forward osmosis, as well as water, wastewater and nuclear power applications. With its distinguished editors

and team of expert contributors, Advanced membrane science and technology for sustainable energy and environmental applications is an essential reference for membrane and materials engineers and manufacturers, as well as researchers and academics interested in this field. Presents a comprehensive review of membrane science and technology, focusing on developments and applications in sustainable energy and clean-industry. Discusses the

fundamentals of membrane processes and separation and membrane characterization and economic analysis

Addresses the key issues of membrane utilisation in coal and gas power plants and the petrochemical industry, the use of membranes for alternative energy applications and membrane utilisation in industrial and environmental applications

### **Advanced Membrane Science and Technology for**

### **Sustainable Energy and Environmental Applications**

National Academies Press  
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.

*Principles of Air and Gas Processing* Elsevier

"Includes hydrate prevention, chemical injection systems, hydrate inhibitor methods; Condensation process, Glycol Regeneration and Molecular Sieves; An appendix provides the reader with additional exercises and solutions"--

*Handbook of Natural Gas Transmission and Processing* Elsevier

Petroleum engineering now has its own true classic handbook that reflects the profession's status as a mature major engineering discipline. Formerly titled the *Practical Petroleum Engineer's Handbook*, by Joseph Zaba and W.T. Doherty (editors), this new, completely updated two-volume set is expanded and revised to give petroleum engineers a comprehensive source of industry standards and engineering practices. It is packed with the key, practical information and

data that petroleum engineers rely upon daily. The result of a fifteen-year effort, this handbook covers the gamut of oil and gas engineering topics to provide a reliable source of engineering and reference information for analyzing and solving problems. It also reflects the growing role of natural gas in industrial development by integrating natural gas topics throughout both volumes. More than a dozen leading industry experts-academia and industry-contributed to



this two-volume set to provide the best , most comprehensive source of petroleum engineering information available.

*Fundamentals of Natural Gas Processing* Springer Fischer-Tropsch

Technology is a unique book for its state-of-the-art approach to Fischer Tropsch (FT) technology. This book provides an explanation of the basic principles and terminology that are required to understand the application of FT technology. It also contains comprehensive

references to patents and previous publications. As the first publication to focus on theory and application, it is a contemporary reference source for students studying chemistry and chemical engineering. Researchers and engineers active in the development of FT technology will also find this book an invaluable source of information. \* Is the first publication to cover the theory and application for modern Fischer Tropsch technology \* Contains

comprehensive knowledge on all aspects relevant to the application of Fischer Tropsch technology \* No other publication looks at past, present and future applications

### **Advances in Natural Gas Technology**

Pennwell Corporation Providing a critical and extensive compilation of the downstream processes of natural gas that involve the principle of gas processing , transmission and distribution, gas flow and network analysis,

instrumentation and measurement systems and its utilisation, this book also serves to enrich readers understanding of the business and management aspects of natural gas and highlights some of the recent research and innovations in the field. Featuring extensive coverage of the design and pipeline failures and safety challenges in terms of fire and explosions relating to the downstream of natural gas technology, the book covers the needs of practising engineers from

different disciplines, who may include project and operations managers, planning and design engineers as well as undergraduate and postgraduate students in the field of gas, petroleum and chemical engineering. This book also includes several case studies to illustrate the analysis of the downstream process in the gas and oil industry. Of interest to researchers is the field of flame and mitigation of explosion: the fundamental processes involved are also

discussed, including outlines of contemporary and possible future research and challenges in the different fields.

### **Multiphase Sound Speed, CO<sub>2</sub> Freeze-Out and HYSYS**

**Implementation** Gulf Professional Publishing Modeling, Control, and Optimization of Natural Gas Processing Plants presents the latest on the evolution of the natural gas industry, shining a light on the unique challenges plant managers and owners face when looking for

ways to optimize plant performance and efficiency, including topics such as the various feed gas compositions, temperatures, pressures, and throughput capacities that keep them looking for better decision support tools. The book delivers the first reference focused strictly on the fast-growing natural gas markets. Whether you are trying to magnify your plants existing capabilities or are designing a new facility to handle more feedstock options, this reference guides you by

combining modeling control and optimization strategies with the latest developments within the natural gas industry, including the very latest in algorithms, software, and real-world case studies. Helps users adapt their natural gas plant quickly with optimization strategies and advanced control methods Presents real-world application for gas process operations with software and algorithm comparisons and practical case studies Provides coverage on multivariable control and

optimization on existing equipment Allows plant managers and owners the tools they need to maximize the value of the natural gas produced

**Contamination Control in the Natural Gas Industry** CRC Press

The accelerated growth of the world population creates an increase of energy needs. This requires new paths for oil supply to its users, which can be potential hazardous sources for individuals and the environment. Risk Analysis for Prevention of

Hazardous Situations in Petroleum and Natural Gas Engineering explains the potential hazards of petroleum engineering activities, emphasizing risk assessments in

drilling, completion, and production, and the gathering, transportation, and storage of hydrocarbons. Designed to aid in decision-making processes for environmental protection,

this book is a useful guide for engineers, technicians, and other professionals in the petroleum industry interested in risk analysis for preventing hazardous situations.