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Natural Gas Processing
A Complete How-to Manual
Contributions in Petroleum Geology and Engineering: Volume 4
Reservoir Engineering Handbook
Multiphase Production
notions fondamentales et applications numériques
Design of Gas-handling Systems and Facilities
Principles, Technologies, and Equipment
Rules of Thumb for Chemical Engineers
Petroleum Refining Design and Applications Handbook
Surface Production Operations, Volume 2:
Cryogenic Engineering, Revised and Expanded
Surface Production Operations: Volume IV: Pumps and Compressors
Contributions in Petroleum Geology and Engineering: Volume 4
Advanced Natural Gas Engineering
Natural Gas Hydrates
Rules of Thumb, Process Planning, Scheduling, and Flowsheet Design, Process Piping Design, Pumps, Compressors, and Process Safety Incidents
Operator's Guide to Process Compressors
Chemical Engineering Practice
Three-Volume Set
Process Engineering and Plant Design
Fluid Mechanics, Heat Transfer, and Mass Transfer
Chemical Engineering Software Guide
Volume 2 Design and Operations
Rules of Thumb for Mechanical Engineers
A Guide for Engineers
Gas Well Deliquification
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Compressors
A Manual of Quick, Accurate Solutions to Everyday Process Engineering Problems
Paper
Rules of Thumb for Chemical Engineers
Principles and Practices
Handbook of Natural Gas Transmission and Processing
The John Zink Hamworthy Combustion Handbook
The Complete Industrial Picture
Design, Modeling and Reliability in Rotating Machinery
Selection and Sizing
Chemical Engineering Progress

ARTHUR FLORES

Natural Gas Processing Elsevier
Gas compressors tend to be the largest, most costly, and most critical machines employed in chemical and gas transfer processes. Since they tend to have the greatest effect on the reliability of processes they power, compressors typically receive the most scrutiny of all the machinery among the general population of processing equipment. To prevent unwanted compressor failures from occurring, operators must be taught how their equipment should operate and how each installation is different from one another. The ultimate purpose of this book is to teach those who work in process settings more about gas compressors, so they can start up and operate them correctly and monitor their condition with more confidence. Some may regard compressor technology as too broad and complex a topic for operating personnel to fully understand, but the author has distilled this vast body of knowledge into some key, easy to understand lessons for the reader to study at his or her own pace. The main goals of this book are to: Explain important theories and concepts about gases and compression processes with a minimum of mathematics Identify key compressor components and explain how they affect reliability Explain how centrifugal compressors, reciprocating compressors, and screw compressors function. Explain key operating factors that affect reliability Introduce the reader to basic troubleshooting methodologies Introduce operators to proven field inspection techniques
A Complete How-to Manual Gulf Professional Publishing
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.
Contributions in Petroleum Geology and Engineering: Volume 4 John Wiley & Sons
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.
Reservoir Engineering Handbook Gulf Professional Publishing
Process equipment and piping in chemical and petrochemical plants and petroleum refineries have to be cleaned periodically as part of normal maintenance operations to remove fouling that interferes with process flow, heat transfer, or other operations. Cleaning is also necessary to allow safe personnel entry prior to equipment inspection, repairs, or modifications. Most cleaning operations are expensive and time-consuming and need to be planned, budgeted, and carried out in a timely fashion to ensure minimum interference with normal process or maintenance operations. Certain process equipment and piping may also have to be cleaned prior to being put into service for the first time. Such pre-commission cleaning removes rust, dirt, and other debris that formed or entered during fabrication, shipment, or erection, and that are likely to cause damage after start-up. process equipment and piping in chemical plants, petrochemical plants and petroleum refineries. Practical information and guidance is provided for plant engineers and operators who, from time to time, are charged with planning various cleaning operations that will be carried out either by in-house maintenance personnel or outside cleaning contractors. Sufficient information is given to enable the nonspecialist to either propose cleaning procedures or evaluate cleaning procedures proposed by others. The manual enumerates a multitude of factors that need to be considered before a cleaning operation is started, including timing, alternative methods, costs, manpower requirements, safety concerns, and waste disposal issues.
Multiphase Production Elsevier
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
notions fondamentales et applications numériques John Wiley & Sons
Natural Gas Hydrates, Fourth Edition, provides a critical reference for engineers who are new to the field. Covering the fundamental properties, thermodynamics and behavior of hydrates in multiphase systems, this reference explains the basics before advancing to more practical applications, the latest developments and models. Updated sections include a new hydrate toolbox, updated correlations and computer methods. Rounding out with new case study examples, this new edition gives engineers an important tool to continue to control and mitigate hydrates in a safe and effective manner. Presents an updated reference with structured comparisons on hydrate calculation methods that are supported by practical case studies and a current list of inhibitor patents Provides a comprehensive understanding of new hydrate management strategies, particularly for multiphase pipeline operations Covers future challenges, such as carbon sequestration with simultaneous production of methane from

hydrates
Design of Gas-handling Systems and Facilities Gulf Professional Publishing
Comprehensive and a fundamental approach to the study of sustainable fuel conversion for the generation of electricity and for coproducing synthetic fuels and chemicals Both electricity and chemicals are critical to maintain our modern way of life however environmental impacts have to be factored in to sustain this type of lifestyle. "Sustainable Energy Conversion for Electricity and Coproducts" provides a unified, comprehensive and a fundamental approach to the study of sustainable fuel conversion in order to generate electricity and optionally coproduce synthetic fuels and chemicals. The book starts with an introduction to energy systems and describes the various forms of energy sources: natural gas, petroleum, coal, biomass, and other renewables and nuclear. Their distribution is discussed in order to emphasize the uneven availability and finiteness of some of these resources. Each topic in the book is covered in sufficient detail from a theoretical and practical applications standpoint essential for engineers involved in the development of the modern power plant. "Sustainable Energy Conversion for Electricity and Coproducts features: "Impact on the environment along with an introduction to the supply chain and life cycle analyses in order to emphasize the holistic approach required for sustainability. Not only are the emissions of criteria pollutants addressed but also the major greenhouse gas CO2 which is essential for the overall sustainability. Underlying principles of physics and their application to engineering including thermodynamics, fluid flow, and heat and mass transfer which form the foundation for the more technology specific chapters that follow. Details specific subjects within energy plants such as prime movers, systems engineering, Rankine cycle and the Brayton-Rankine combined cycle, and emerging technologies such as high temperature membranes and fuel cells etc... Sustainable energy conversion is an extremely active field of research at this time. By covering the multidisciplinary fundamentals in sufficient depth, this book is largely self-contained suitable for the different engineering disciplines, as well as chemists working in this field of sustainable energy conversion. Ashok Rao, PhD, is a well-acknowledged national and international leader in the field of energy conversion and has made wide-ranging contributions in these fields over the past 40 years in industry as well as at the University of California's Advanced Power and Energy Program where he is currently its Chief Scientist for Power Systems. While working at Fluor as a Director in Process Engineering, he was honoured by being made a Senior Fellow. In 2011 he was invited to be the associate editor for the ASME Journal of Engineering for Gas Turbines and Power and a keynote speaker at the 2011 International Conference on Applied Energy, Perugia, Italy. He also has a number of patents to his credit in the field of energy conversion as well as numerous high quality publications.
Principles, Technologies, and Equipment John Wiley & Sons
Despite the length of time it has been around, its importance, and vast amounts of research, combustion is still far from being completely understood. Issues regarding the environment, cost, and fuel consumption add further complexity, particularly in the process and power generation industries. Dedicated to advancing the art and science of industr
Rules of Thumb for Chemical Engineers Gulf Professional Publishing
This broad-based book covers the three major areas of Chemical Engineering. Most of the books in the market involve one of the individual areas, namely, Fluid Mechanics, Heat Transfer or Mass Transfer, rather than all the three. This book presents this material in a single source. This avoids the user having to refer to a number of books to obtain information. Most published books covering all the three areas in a single source emphasize theory rather than practical issues. This book is written with emphasis on practice with brief theoretical concepts in the form of questions and answers, not adopting stereo-typed question-answer approach practiced in certain books in the market, bridging the two areas of theory and practice with respect to the core areas of chemical engineering. Most parts of the book are easily understandable by those who are not experts in the field. Fluid Mechanics chapters include basics on non-Newtonian systems which, for instance find importance in polymer and food processing, flow through piping, flow measurement, pumps, mixing technology and fluidization and two phase flow. For example it covers types of pumps and valves, membranes and areas of their use, different equipment commonly used in chemical industry and their merits and drawbacks. Heat Transfer chapters cover the basics involved in conduction, convection and radiation, with emphasis on insulation, heat exchangers, evaporators, condensers, reboilers and fired heaters. Design methods, performance, operational issues and maintenance problems are highlighted. Topics such as heat pipes, heat pumps, heat tracing, steam traps, refrigeration, cooling of electronic devices, NOx control find place in the book. Mass transfer chapters cover basics such as diffusion, theories, analogies, mass transfer coefficients and mass transfer with chemical reaction, equipment such as tray and packed columns, column internals including structural packings, design, operational and installation issues, drums and separators are discussed in good detail. Absorption, distillation, extraction and leaching with applications and design methods, including emerging practices involving Divided Wall and Petluk column arrangements, multicomponent separations, supercritical solvent extraction find place in the book.
Petroleum Refining Design and Applications Handbook CRC Press
Despite the length of time it has been around, its importance, and vast amounts of research, combustion is still far from being completely understood. Issues regarding the environment, cost, and fuel consumption add further complexity, particularly in the process and power generation industries. Dedicated to advancing the art and science of industr
Surface Production Operations, Volume 2: Cryogenic Engineering, Revised and Expanded
Rules of Thumb for Chemical Engineers, Sixth Edition, is the most complete guide for chemical and process engineers who need reliable and authoritative solutions to on-the-job problems. The text is comprehensively revised and updated with new data and formulas. The book helps solve process design problems quickly, accurately and safely, with hundreds of common sense techniques, shortcuts and calculations. Its concise sections detail the steps needed to answer critical design questions and challenges. The book discusses physical properties for proprietary materials, pharmaceutical and biopharmaceutical sector heuristics, process design, closed-loop heat transfer systems, heat exchangers, packed columns and structured packings. This book will help you: save time you no longer have to spend on theory or derivations; improve accuracy by exploiting well tested and accepted methods culled from industry experts; and save money by reducing reliance on consultants. The book brings together solutions, information and work-arounds from engineers in the process industry. Includes new chapters on biotechnology and filtration Incorporates additional tables with typical values and new calculations Features supporting data for selecting and specifying heat transfer equipment
Cryogenic Engineering, Revised and Expanded National Assn of Corrosion
Cet ouvrage présente, sous la forme la plus didactique possible, toutes les notions de physique des fluides indispensables à la résolution des problèmes pratiques ou industriels classiques et des applications numériques à des exemples industriels facilitant la maîtrise de ces notions. Ces applications, présentées sous la forme d'exercices ou de problèmes, permettent d'étudier aussi bien des machines (compresseurs, turbines à gaz, soufflantes) que des installations (circuits frigorifiques, circuits de réfrigération d'eau, centrales thermiques, chaudières, climatiseurs). Elles montrent que les notions fondamentales présentées intéressent des secteurs aussi différents que le génie chimique, le génie pétrolier, la production d'énergie, la production de frigories ou la climatisation. Cet ouvrage est destiné aux étudiants en classes préparatoires aux Ecoles d'ingénieurs, aux techniciens supérieurs, aux diplômés d'Instituts universitaires de technologie et aux ingénieurs qui utilisent la physique des fluides. Contents : I. Rappel des définitions de termes et de grandeurs de base utilisés en physique industrielle des fluides. 1. Mécanique classique. 2. Hydrostatique. 3. Thermique. II. Caractéristiques et comportement des fluides. 4. Notions élémentaires sur la constitution de la matière. 5. Constituants des gaz naturels et des pétroles bruts. 6. Changements d'état des corps. 7. Propriétés principales des fluides. III. Propriétés énergétiques des fluides. 8. Propriétés des énergies considérées en physique industrielle des fluides. 9. Applications des lois de la thermodynamique aux fluides en mouvement. 10. Expressions des fonctions thermodynamiques. Applications au gaz parfait. 11. Expressions de la puissance de compression des gaz. 12. Applications à des cas particuliers des lois de la mécanique et des propriétés énergétiques des fluides. 13. Evolution de la température d'un fluide au cours de son transport dans une conduite. Index.
Surface Production Operations: Volume IV: Pumps and Compressors Gulf Professional Publishing
This practical reference provides in-depth information required to understand and properly estimate compressor capabilities and to select the proper designs. Engineers and students will gain a thorough understanding of compression principles, equipment, applications, selection, sizing, installation, and maintenance. The many examples clearly illustrate key aspects to help readers understand the "real world" of compressor technology. Compressors: Selection and Sizing, third edition is completely updated with new API standards. Additions requested by readers include a new section on diaphragm compressors in the reciprocating compressors chapter, and a new section on rotor dynamics stability in the chapter on diaphragm compressors. The latest technology is presented in the areas of efficiency, 3-D geometry, electronics, CAD, and the use of plant computers. The critical chapter on negotiating the purchase of a compressor now reflects current industry practices for preparing detailed specifications, bid evaluations, engineering reviews, and installation. A key chapter compares the reliability of various types of compressors. * Everything you need to select the right compressor for your specific application. * Practical information on compression principles, equipment, applications, selection, sizing, installation, and maintenance. * New sections on diaphragm compressors and an introduction to rotor dynamics stability.
Contributions in Petroleum Geology and Engineering: Volume 4 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.
CRC Press
The job of any reservoir engineer is to maximize production from a field to obtain the best economic return. To do this, the engineer must study the behavior and characteristics of a petroleum reservoir to determine the course of future development and production that will maximize the profit. Fluid flow, rock properties, water and gas coning, and relative permeability are only a few of the concepts that a reservoir engineer must understand to do the job right, and some of the tools of the trade are water influx calculations, lab tests of reservoir fluids, and oil and gas performance calculations.Two new chapters have been added to the first edition to make this book a complete resource for students and professionals in the petroleum industry: Principles of Waterflooding, Vapor-Liquid Phase Equilibria.
Advanced Natural Gas Engineering Gulf Professional Publishing
Gas Well Deliquification, Third Edition, expands upon previous experiences and applies today's more applicable options and technology. Updated to include more information on automation, nodal analysis, and horizontal gas well operations, this new edition provides engineers with key information in one central location. Multiple contributors from today's operators offer their own learned experiences, critical equipment, and rules of thumb for practicality. Covering the entire lifecycle of the well, this book will be an ideal reference for engineers who need to know the right solutions regarding a well's decline curve in their work to continuously optimize assets. Teaches users how to understand the latest methods of deliquifying gas wells, from nodal analysis, to various forms of artificial lift Provides an up-to-date reference on automation techniques for today's operations, including horizontal wells Presents various perspectives contributed from multiple sources, allowing readers to select the best method for a well's lifecycle
Natural Gas Hydrates John Wiley & Sons
This new edition of the most complete handbook for chemical and process engineers incorporates the latest information for engineers and practitioners who depend on it as a working tool. New material explores the recent trends and updates of gas treating and fractionator computer solutions analysis. Substantial additions to this edition include a new section on gasification that reflects the many new trends and techniques in the field and a treatment on compressible fluid flow. This convenient volume provides engineers with hundreds of common sense techniques, shortcuts, and calculations to quickly and accurately solve day-to-day design, operations, and equipment problems. Here, in a compact, easy-to-use format, are practical tips, handy formulas, correlations, curves, charts, tables, and shortcut methods that will save engineers valuable time and effort. * The standard handbook for chemical and process engineers * All new material on pinch point analysis on networks of heat exchangers and updates on gas treating in process design and heat transfer * Hundreds of common sense techniques and calculations
Rules of Thumb, Process Planning, Scheduling, and Flowsheet Design, Process Piping Design, Pumps, Compressors, and Process Safety Incidents Amer Society of Mechanical
This third edition of this highly successful volume is fully updated and includes new information on buoyancy control, Trenchless Crossing methods, as well as on Compressor Fuel Calculations and Optimization, Hydrotesting and LPG Pipelining. This book offers straightforward, practical techniques for pipeline design and construction, making it an ideal professional reference, training tool, or comprehensive text. The authors present the various elements that make up a single-phase liquid and gas pipeline system, including how to design, construct, commission, and assess pipelines and related facilities. They discuss gas and liquid transmission, compression, pumps, protection and integrity, procurement services, and the management of pipeline projects. More complex specialty fluids are also covered, including CO2, H2, slurry and multi-products. (Publisher).
Operator's Guide to Process Compressors CRC Press
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.

Chemical Engineering Practice CRC Press

This revised edition puts the most current information about gas-handling systems and facilities at your fingertips. The authors channeled their classroom and field experience into this volume, which features many new sections such as: * Heat recovery units * Kinetic inhibitors and anti-agglomerators * Trays and packing for distillation and absorption towers * Compressor valves * Foundation design considerations for reciprocating compressors * Pressure vessel issues and components * Nox reduction in engines and turbines * Safety management systems This book walks you through the equipment and processes used in gas-handling operations to help you design and manage a production facility. Production engineers will keep this volume on the desktop for the latest information on how to DESIGN, SPECIFY, and OPERATE gas-handling systems and facilities. The book allows engineers with little or background in production facility design to easily locate details about equipment, processes, and design parameters. With this volume, you will more completely comprehend the techniques of handling produced fluids from gas wells so your facility can be more efficient and productive. * Revised edition puts the most current information about gas-handling systems at your fingertips * Features brand new sections!

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