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Technical Data Book, Petroleum Refining
Refining Processes Handbook
Research and Development Report
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Oil Spill Occurrence, Simulation, and Behavior

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MCKENZIE CROSS

Technology, Economics, and Markets, Sixth Edition Elsevier
State-of-the-art oilsands processing technologies, from laboratory to full commercial scale.
Technical Data Book - Petroleum Refining University of Alberta
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.

Technical Data Book, Petroleum Refining Gulf Professional Publishing

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

Refining Processes Handbook Royal Society of Chemistry

This five-volume series covers the entire range of technologies used in the petroleum refining industry. The books are intended for students and for the engineers and technicians who operate in refineriesIn addition to the detailed description of the conventional separation processes used in refining, this volume devotes ample space to discussing future developments. These include enhancements to existing technologies and the introduction of new technologies and separation processes that are as yet seldom implemented in the industry.Contents: 1. Basics of separation operations. 2. Thermodynamics: phase equilibria. 3. Mass transfer and efficiency of separation operations. 4. Distillation, absorption and stripping. 5. Distillation, absorption and stripping in the petroleum industry. 6. Liquid-liquid extraction. 7. Solvent extraction in the oil industry. 8. Crystallization. 9. Crystallization in the oil industry: solvent dewaxing. 10. Adsorption. 11. Adsorption in the oil and gas industry. 12. Membrane separation. References. Index.

Research and Development Report CRC Press

In this first volume, the reader will find, collected and condensed, the information needed to characterize, analyze, and evaluate crude oils from different origins and their corresponding petroleum cuts as well. The characteristics and specifications of all the petroleum products along with their simplified process flowsheets are reviewed.Contents: 1. Composition of crude oils and petroleum products. 2. Fractionation and elemental analysis of crude oils and petroleum cuts. 3. Characterization of crude oils and petroleum fractions. 4. Methods for the calculation of hydrocarbon physical properties. 5. Characteristics of petroleum products for energy use (motor fuels - heating fuels). 6. Characteristics of non-fuel petroleum products. 7. Standards and

specifications of petroleum products. 8. Evaluation of crude oils. 9. Additives for motor fuels and lubricants. 10. Introduction to refining. Appendices: Principal characteristics of pure components. Principal standard test methods for petroleum products. References. Index.

Chapters 1-6 Elsevier

Of the 36 billon tons of carbon dioxide (CO2) being emitted into Earth’s atmosphere every year, only 40 million tons are able to be captured and stored. This is just a fraction of what needs to be captured, if this technology is going to make any headway in the global march toward reversing, or at least reducing, climate change. CO2 capture and storage has long been touted as one of the leading technologies for reducing global carbon emissions, and, even though it is being used effectively now, it is still an emerging technology that is constantly changing. This volume, a collection of papers presented during the Cutting-Edge Technology for Carbon Capture, Utilization, and Storage (CETCCUS), held in Clermont-Ferrand, France in the fall of 2017, is dedicated to these technologies that surround CO2 capture. Written by some of the most well-known engineers and scientists in the world on this topic, the editors, also globally known, have chosen the most important and cutting-edge papers that address these issues to present in this groundbreaking new volume, which follows their industry-leading series, Advances in Natural Gas Engineering, a seven-volume series also available from Wiley-Scrivener. With the ratification of the Paris Agreement, many countries are now committing to making real progress toward reducing carbon emissions, and this technology is, as has been discussed for years, one of the most important technologies for doing that. This volume is a must-have for any engineer or scientist working in this field.

Volume 34 - Pentachlorophenol to Petroleum Fractions: Liquid Densities CRC Press

For four decades, Petroleum Refining has guided thousands of readers toward a reliable understanding of the field, and through the years has become the standard text in many schools and universities around the world offering petroleum refining classes, for self-study, training, and as a reference for industry professionals. The sixth edition of this perennial bestseller continues in the tradition set by Jim Gary as the most modern and authoritative guide in the field. Updated and expanded to reflect new technologies, methods, and topics, the book includes new discussion on the business and economics of refining, cost estimation and complexity, crude origins and properties, fuel specifications, and updates on technology, process units, and catalysts. The first half of the book is written for a general audience to introduce the primary economic and market characteristics of the industry and to describe the inputs and outputs of refining. Most of this material is new to this edition and can be read independently or in parallel with the rest of the text. In the second half of the book, a technical review of the main process units of a refinery is provided, beginning with distillation and covering each of the primary conversion and treatment processes. Much of this material was reorganized, updated, and rewritten with greater emphasis on reaction chemistry and the role of catalysis in applications. Petroleum Refining: Technology, Economics, and Markets is a book written for users, the practitioners of refining, and all those who want to learn more

about the field.

Technical Data Book - Petroleum Refining Gulf Professional Publishing

Oil Spill Occurrence, Simulation, and Behavior provides practical insight into oil spills and their causes, impacts, response and cleanup methods, simple and advanced modeling of oil spill behavior, and oil spill simulation techniques. Discusses various sources of oil spills and major accidents Includes case studies on the 2010 Gulf of Mexico oil spill, including environmental, economic, and political impacts, modeling and behavior as well as response and cleanup methods Introduces some commercial softwares on predicting oil movement and spreading on water Describes properties and characteristics of crude oil and its products needed for simulation and prediction of behavior of an oil slick Written as an applied book with minimal math and theory, making it accessible to a wide range of readers The book includes more than 100 unique and informative images in color This essential book is aimed at professionals, academics, and scientists in the fields of chemical engineering, petroleum engineering, environmental engineering, marine and ocean engineering working on the simulation and modeling, mitigation, and prevention of oil spills.

Upgrading Petroleum Residues and Heavy Oils John Wiley & Sons

Fossil hydrocarbons form a continuous series whose"heavy"members--heavy oils, bitumens, oil shale kerogens, and coal--are important sources of conventional lighter fuels. These hydrocarbons are much more abundant and easier to extract than natural gas and oil. This book discusses the origins and compositions of fossil hydrocarbons and shows how the"heavies"can be chemically transformed into environmentally clean gas, liquid transportation fuels, and an almost unlimited range of petrochemicals. Dr. Berkowitz explodes the entrenched dichotomy between"petroleum hydrocarbons"and coal that has shaped popular perceptions of energy, showing that it is feasible to develop new technologies that capitalize on the availability of"synthetic"natural gas and light oils. Fossil Hydrocarbons: Chemistry and Technology is a comprehensive treatment of fossil hydrocarbons, covering the source materials, biosources, metamorphic histories, geochemistry, classification, and molecular structure. It discusses the use of fossil hydrocarbons as a viable energy source in our future, detailing the preparation, processing and conversion technologies, as well as discussing the environmental issues that arise from production, processing, and use of various fossil hydrocarbons. Approaches various fossil hydrocarbons as chemically related entities, thus dispelling the unwarranted distinctions between crude oils and coal Explains how heavy fossil hydrocarbons can be processed by much the same methods as crude oils for good economic and environmental purpose Illustrates how bitumens, oil shales, and coals are convertible into synthetic natural gas and oils Shows a path for reasonable energy self-sufficiency, through conversion of heavy hydrocarbons into synthetic natural gas and oils Augments each chapter with end-of-chapter notes and a detailed bibliography Provides more than 200 useful tables, schematics, and figures

Technology and Economics, Fifth Edition John Wiley & Sons

"This useful reference offers in-depth coverage of current techniques for converting heavy oils and residues into more

valuable distillates.Examines the chemistry of heavy hydrocarbon feeds and their properties important to engineering design, including phase behavior, reaction kinetics, and thermodynamic and transport characteristics!"

A Practical Guide Using a Three Steps Methodology CRC Press

"Written by engineers for engineers (with over 150 International Editorial Advisory Board members),this highly lauded resource provides up-to-the-minute information on the chemical processes, methods, practices, products, and standards in the chemical, and related, industries. "

Refinery Engineering Editions TECHNIP

This handbook provides a comprehensive but concise reference resource for the vast field of petroleum technology. Built on the successful book "Practical Advances in Petroleum Processing" published in 2006, it has been extensively revised and expanded to include upstream technologies. The book is divided into four parts: The first part on petroleum characterization offers an in-depth review of the chemical composition and physical properties of petroleum, which determine the possible uses and the quality of the products. The second part provides a brief overview of petroleum geology and upstream practices. The third part exhaustively discusses established and emerging refining technologies from a practical perspective, while the final part describes the production of various refining products, including fuels and lubricants, as well as petrochemicals, such as olefins and polymers. It also covers process automation and real-time refinery-wide process optimization. Two key chapters provide an integrated view of petroleum technology, including environmental and safety issues.Written by international experts from academia, industry and research institutions, including integrated oil companies, catalyst suppliers, licensors, and consultants, it is an invaluable resource for researchers and graduate students as well as practitioners and professionals.

Fuels for the Future Copyright Office, Library of Congress

Fluid Phase Behavior for Conventional and Unconventional Oil and Gas Reservoirs delivers information on the role of PVT (pressure-volume-temperature) tests/data in various aspects, in particular reserve estimation, reservoir modeling, flow assurance, and enhanced oil recovery for both conventional and unconventional reservoirs. This must-have reference also prepares engineers on the importance of PVT tests, how to evaluate the data, develop an effective management plan for flow assurance, and gain perspective of flow characterization, with a particular focus on shale oil, shale gas, gas hydrates, and tight oil making. This book is a critical resource for today’s reservoir engineer, helping them effectively manage and maximize a company’s oil and gas reservoir assets. Provides tactics on reservoir phase behavior and dynamics with new information on shale oil and gas hydrates Helps readers Improve on the effect of salt concentration and application to C02-Acid Gas Disposal with content on water-hydrocarbon systems Provides practical experience with PVT and tuning of EOS with additional online excel spreadsheet examples

Chapter 7-11 Editions OPHRYS

The selection of the most adequate thermodynamic model in a process simulation is an issue that most process engineer has to face sooner or later. This book, conceived as a practical guide, aims at providing adequate answers by analysing the questions

to be looked at. The analysis (first chapter) yields three keys that are further discussed in three different chapters. (1) A good understanding of the properties required in the process, and their method of calculation is the first key. The second chapter provides to that end in a synthetic manner the most important equations that are derived from the fundamental principes of thermodynamics. (2) An adequate description of the mixture, which is a combination of models and parameters, is the second key. The third chapter makes the link between components and models, both from a numerical (parameterisation) and physical (molecular interactions) point of view. Finally, (3) a correct view of the phase behaviour and trends in regard of the process conditions is the third key. The fourth chapter illustrates the phase behaviour and makes model recommendations for the most significant industrial systems. A decision tree is provided at the end of this chapter. In the last chapter, the key questions are reviewed for a number of typical processes. This book is intended for process engineers, who are not specialists of thermodynamics but are confronted with this kind of problems and need a reference book, as well as process engineering students who will find an original approach to thermodynamics, complementary of traditional lectures

SOI Bulletin. Bulletin Technical Data Book - Petroleum RefiningTechnical Data Book - Petroleum RefiningChapters 1-6Technical Data Book - Petroleum RefiningChapter 7-11Fundamentals of Petroleum Refining

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.

Fundamentals of Petroleum Refining John Wiley & Sons

Chemical Thermodynamics for Industry presents the latest developments in applied thermodynamics and highlights the role of thermodynamics in the chemical industry. Written by leading experts in the field, Chemical Thermodynamics for Industry covers the latest developments in traditional areas such as calorimetry, microcalorimetry, transport properties, crystallization, adsorption, electrolyte systems and transport fuels, It highlights newly established areas such as multiphase modeling, reactive distillation, non-equilibrium thermodynamics and spectro-calorimetry. It also explores new ways of treating old

technologies as well as new and potentially important areas such as ionic liquids, new materials, ab-initia quantum chemistry, nano-particles, polymer recycling, clathrates and the economic value of applied thermodynamics. This book is aimed not only at those working in a specific area of chemical thermodynamics but also at the general chemist, the prospective researcher and those involved in funding chemical research.

Petroleum Refining John Wiley & Sons

In this first volume, the reader will find, collected and condensed, the information needed to characterize, analyze, and evaluate crude oils from different origins and their corresponding petroleum cuts as well. The characteristics and specifications of all the petroleum products along with their simplified process flowsheets are reviewed.Contents: 1. Composition of crude oils and petroleum products. 2. Fractionation and elemental analysis of crude oils and petroleum cuts. 3. Characterization of crude oils and petroleum fractions. 4. Methods for the calculation of hydrocarbon physical properties. 5. Characteristics of petroleum products for energy use (motor fuels - heating fuels). 6. Characteristics of non-fuel petroleum products. 7. Standards and specifications of petroleum products. 8. Evaluation of crude oils. 9. Additives for motor fuels and lubricants. 10. Introduction to refining. Appendices: Principal characteristics of pure components. Principal standard test methods for petroleum products. References. Index.

Integrated Optimization Tools and Applications Editions OPHRYS

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

Chemical Thermodynamics for Industry Tata McGraw-Hill

Education
For the first time, an essential reference for the multi-billion dollar petrochemical industry that covers the complex topics involved in refining.
Natural Gas Processing Springer Science & Business Media
Process Safety Calculations, Second Edition remains to be an essential guide for students and practitioners in process safety engineering who are working on calculating and predicting risks and consequences. The book focuses on calculation procedures based on basic chemistry, thermodynamics, fluid dynamics, conservation equations, kinetics and practical models. It provides helpful calculations to demonstrate compliance with regulations and standards, such as Seveso directive(s)/COMAH, CLP regulation, ATEX directives, PED directives, REACH regulation, OSHA/NIOSH and UK ALARP, along with risk and consequence assessment, stoichiometry, thermodynamics, stress analysis and fluid-dynamics. This fully revised, updated and expanded second edition follows the same organization as the first, including the original three main parts, Fundamentals, Consequence Assessment and Quantitative Risk Assessment. However, the latter part is significantly expanded, including an appendix consisting of five fundamental thematic areas belonging to the risk assessment framework, including in-depth calculations methodologies for some fundamental monothematic macro-areas of process safety. Revised, updated and expanded new edition that includes newly developing areas of process safety that are relevant to QRA Provides engineering fundamentals to enable readers to properly approach the subject of process safety Includes a remarkable and broad numbers of calculation examples, which are completely resolved and fully explained Develops the QRA subject, consistently with the methodology applied in the big projects

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