

The background of the book cover is a photograph of a petroleum refinery at dusk or dawn. The sky is a deep purple and blue. In the foreground, there are large, dark, curved pipes that spiral around the frame. In the background, the refinery's complex structure is visible, including tall distillation columns, a network of pipes, and scaffolding. The lighting is dramatic, with the refinery structures silhouetted against the colorful sky.

# PETROLEUM REFINERY PROCESS ECONOMICS

2<sup>nd</sup> Edition

Robert E. Maples

# Petroleum Refinery Process Economics

**Pierre Leprince**



## **Petroleum Refinery Process Economics:**

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**Petroleum Refining** James H. Gary, Glenn E. Handwerk, Mark J. Kaiser, 2007-03-05 Petroleum refiners must face billion dollar investments in equipment in order to meet ever changing environmental requirements Because the design and construction of new processing units entail several years lead time refiners are reluctant to commit these dollars for equipment that may no longer meet certain conditions when the units come on stream Written by experts with both academic and professional experience in refinery operation design and evaluation *Petroleum Refining Technology and Economics* Fifth Edition is an essential textbook for students and a vital resource for engineers This latest edition of a bestselling text provides updated data and addresses changes in refinery feedstock product distribution and processing requirements resulting from federal and state legislation Providing a detailed overview of today's integrated fuels refinery the book discusses each major refining process as they relate to topics such as feedstock preparation operating costs catalysts yields finished product properties and economics It also contains end of chapter problems and an ongoing case study *Fuels and Lubricants Handbook*,

**Fundamentals of Petroleum Refining** Mohamed A. Fahim, Taher A. Al-Sahhaf, Amal Elkilani, 2009-11-19 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 Petroleum Refining Design and Applications Handbook, Volume 1 A. Kayode Coker, 2018-08-09 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 **Model-Based Optimization for Petroleum Refinery Configuration Design** Cheng Seong Khor, 2024-01-03 Model Based Optimization for Petroleum Refinery Configuration Design An accessible easy to read introduction to the methods of mixed integer optimization with practical applications real world operational data and case studies Interest in model based approaches for optimizing the design of petroleum refineries has increased throughout the industry in recent years Mathematical optimization based on mixed integer programming has brought about the superstructure optimization method for synthesizing petroleum refinery configurations from multiple topological alternatives Model Based Optimization

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**Petroleum Refining** Mark J. Kaiser,Arno de Klerk,James H. Gary,Glenn E. Handwerk,2019-09-11 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

**Petroleum Refining Processes** James G. Speight,Baki Ozum,2001-10-31 This work highlights contemporary approaches to resource utilization and provides comprehensive coverage of technological advances in residuum conversion It illustrates state of the art engineering methods for the refinement of heavy oils bitumen and other high sulphur feedstocks *Handbook of Petroleum Refining* James G. Speight,2016-10-26 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 refinability of the various feedstocks 3 thermal processes versus hydroprocesses and 4 the influence of refining on the environment *product guide SUMMER 2008* , **Hydrogen Economy, The: Fundamentals, Technology, Economics** Duncan Seddon,2022-04-19 The Hydrogen Economy is very broad subject ranging from the potential use of hydrogen for domestic use to the mass production of hydrogen replacing coal natural gas LNG and conventional transport fuels For any given project there are many alternatives to consider for each stage of making storing and transporting hydrogen The book aims to assist proponents and financiers of hydrogen projects to identify the optimum alternatives and identify hurdles and approaches to overcome them This book attempts to describe an optimum approach to implement and its cost It sets out to identify hurdles to implementation which may not be apparent to those entering the field for the first time The book covers the various means and costs of production from fossil fuels with carbon capture blue hydrogen electrolysis green hydrogen or biomass The book covers hydrogen storage as liquid or compressed gas and transport through pipelines as liquid or by an intermediary fluid such as ammonia or a hydrocarbon The book also discusses the production and costs of hydrogen delivery at the user end of a logistics chain It also compares the relative energy value of energy delivered hydrogen versus the current suite of conventional fuels **Petroleum Economics and Engineering, Third Edition** Hussein K. Abdel-Aal,Mohammed A. Alsahlawi,2013-12-14 This book explains how to apply economic analysis to the evaluation of engineering challenges in the petroleum industry Discussion progresses from an introduction to the industry through principles and techniques of engineering economics to the application of economic methods Packed with real world examples and case studies demonstrating how to calculate rate of return discounted cash flow payout period and more Petroleum Economics and Engineering Third Edition assists petroleum engineers chemical engineers production workers management and executives in sound economic decision making regarding the design manufacture and operation of oil and gas plants equipment and processes The fully revised third edition is updated to reflect key advancements in petroleum technology and expanded to include chapters on middle stream operations known as surface petroleum operations SPO and natural gas processing and fractionation By looking globally at the hydrocarbon industry the improved text offers the reader a more complete picture of the petroleum sector which includes the global processes of exploration production refining and transportation **Hydrotreating and Hydrocracking Processes in Refining Technology** James G. Speight,2023-09-29 Written by an industry expert with over 50 years of experience this book details the various solvent processes that are used in crude oil refineries Providing an in depth exploration of the different types of processes as well as the types of feedstocks that can be used with them this book prepares readers for changes as the industry evolves Key Features Describes feedstock evaluation and the effects of elemental chemical and fractional composition Contains an

extensive glossary of all related concepts in hydrotreating and hydrocracking processes Considers next generation processes and developments This book is an essential guide for engineers scientists and students in the field of petroleum processing and refining technology including professionals technicians management personnel and academics *Petroleum Refining. Vol. 3 Conversion Processes* Pierre Leprince, 2001-01-01 This volume describes the characteristics of processes used in petroleum refining upgrading light fractions reforming and isomerization converting distillates catalytic cracking hydrocracking and associated equipment converting residues visbreaking coking hydroconversion and reducing air and water pollution white product sweetening acid gas stack gas and waste water treatment This book is available in French Under the title le raffinage du p trole Tome 3 Proc d s de transformation Contents 1 Introduction 2 Basic principles governing chemical changes 3 Industrial catalysts 4 Catalytic reforming 5 Catalytic cracking 6 Isomerization of light paraffins 7 Aliphatic alkylation 8 Olefin etherification 9 Oligomerization 10 Hydrocracking 11 Visbreaking of residues 12 Coking 13 Residue hydroconversion 14 Hydrogen production 15 White products refining by sweetening 16 Hydrotreating 17 Acid gas treatment 18 Desulfurization of stack gases 19 Water treatment References Index **Economic Analysis of Oil and Gas Engineering Operations** Hussein K. Abdel-Aal, 2021-02-26 Engineers seek solutions to problems and the economic viability of each potential solution is normally considered along with the technical merits This is typically true for the petroleum sector which includes the global processes of exploration production refining and transportation Decisions on an investment in any oil or gas field development are made on the basis of its value which is judged by a combination of a number of economic indicators Economic Analysis of Oil and Gas Engineering Operations focuses on economic treatment of petroleum engineering operations and serves as a helpful resource for making practical and profitable decisions in oil and gas field development Reflects major changes over the past decade or so in the oil and gas industry Provides thorough coverage of the use of economic analysis techniques in decision making in petroleum related projects Features real world cases and applications of economic analysis of various engineering problems encountered in petroleum operations Includes principles applicable to other engineering disciplines This work will be of value to practicing engineers and industry professionals managers and executives working in the petroleum industry who have the responsibility of planning and decision making as well as advanced students in petroleum and chemical engineering studying engineering economics petroleum economics and policy project evaluation and plant design *Thermal and Catalytic Processing in Petroleum Refining Operations* James G. Speight, 2023-04-11 This book presents the thermal and catalytic processes in refining The differences between each type of process and the types of feedstock that can be used for the processes are presented Relevant process data is provided and process operations are fully described This accessible guide is written for managers professionals and technicians as well as graduate students transitioning into the refining industry Key Features Describes feedstock evaluation and the effects of elemental chemical and fractional composition Details reactor types and bed types

Explores the process options and parameters involved Assesses coke formation and additives Considers next generation processes and developments

**Energy Finance and Economics** Betty Simkins, Russell Simkins, 2013-02-20 Thought leaders and experts offer the most current information and insights into energy finance Energy Finance and Economics offers the most up to date information and compelling insights into the finance and economics of energy With contributions from today's thought leaders who are experts in various areas of energy finance and economics the book provides an overview of the energy industry and addresses issues concerning energy finance and economics The book focuses on a range of topics including corporate finance relevant to the oil and gas industry as well as addressing issues of unconventional renewable and alternative energy A timely compendium of information and insights centering on topics related to energy finance Written by Betty and Russell Simkins two experts on the topic of the economics of energy Covers special issues related to energy finance such as hybrid cars energy hedging and other timely topics In one handy resource the editors have collected the best thinking on energy finance

Modeling of Processes and Reactors for Upgrading of Heavy Petroleum Jorge Ancheyta, 2013-01-29 The worldwide petroleum industry is facing a dilemma the production level of heavy petroleum is higher than that of light petroleum Heavy crude oils possess high amounts of impurities sulfur nitrogen metals and asphaltenes as well as a high yield of residue with consequent low production of valuable distillates gasoline and diesel These characteristics in turn are responsible for the low price of heavy petroleum Additionally existing refineries are designed to process light crude oil and heavy oil cannot be refined to 100 percent One solution to this problem is the installation of plants for heavy oil upgrading before sending this raw material to a refinery Modeling of Processes and Reactors for Upgrading of Heavy Petroleum gives an up to date treatment of modeling of reactors employed in the main processes for heavy petroleum upgrading The book includes fundamental aspects such as thermodynamics reaction kinetics chemistry and process variables Process schemes for each process are discussed in detail The author thoroughly describes the development of correlations reactor models and kinetic models with the aid of experimental data collected from different reaction scales The validation of modeling results is performed by comparison with experimental and commercial data taken from the literature or generated in various laboratory scale reactors Organized into three sections this book deals with general aspects of properties and upgrading of heavy oils describes the modeling of non catalytic processes as well as the modeling of catalytic processes Each chapter provides detailed experimental data explanations of how to determine model parameters and comparisons with reactor model predictions for different situations so that readers can adapt their own computer programs The book includes rigorous treatment of the different topics as well as the step by step description of model formulation and application It is not only an indispensable reference for professionals working in the development of reactor models for the petroleum industry but also a textbook for full courses in chemical reaction engineering The author would like to express his sincere appreciation to the Marcos Moshinsky Foundation for the financial support provided by means of a Ctedra de Investigaci n



## **Petroleum Refinery Process Economics** Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has are more apparent than ever. Its power to stir emotions, provoke thought, and instigate transformation is really remarkable. This extraordinary book, aptly titled "**Petroleum Refinery Process Economics**," compiled by a highly acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound affect our existence. Throughout this critique, we will delve in to the book is central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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