

Petroleum Refining And Petrochemical Processes

Planning and Integration of Refinery and Petrochemical Operations Leveraging Synergies
Between Refining and Petrochemical Processes Industrial Water Treatme... Petroleum
Refining and Petrochemical Industry Integration and Coordination Under Uncertainty Oil
Refineries and Petrochemical Industries in Western Europe Oil & Gas Petroleum Refining
and Petrochemical Industry Integration and Coordination Under Uncertainty Corrosion
Problems and Solutions in Oil Refining and Petrochemical Industry Petroleum Refining
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Petroleum Refining Advanced Catalysis Processes in Petrochemicals and Petroleum
Refining Catalysis for Clean Energy and Environmental Sustainability The Chemistry and
Technology of Petroleum Oil Refineries and Petrochemical Industries in Western
Europe Hydrocarbons Processing Handbook of Petroleum Refining Khalid Y. Al-Qahtani
Eberhard Lucke Francois Bern?e Khalid Alqahtani Willem Molle Sherice Stanely Khalid
Y. Al-Qahtani Alec Groysman A. Kayode Coker National Petroleum Refiners Association
M. Absi-Halabi James H. Gary Santi Kulprathipanja Mohamed A. Fahim Mohammed C. Al-
Kinany K. K. Pant James G. Speight Willem Molle Arlon R. Tussing James G. Speight
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clearly divided into three main sections this practical book familiarizes readers with the area of planning in petroleum refining and petrochemical industry while introducing several planning and modeling strategies encompassing single site refinery plants multiple refinery networks petrochemical networks and refinery and petrochemical planning systems it equally provides an insight into possible research directions and recommendations for the area of refinery and petrochemical planning furthermore several appendices are included to explain the general background necessary including stochastic programming chance constraint programming and robust optimization for engineers and managers working in the petroleum industry as well as academic researchers in production logistics and supply chain management

leveraging synergies between refining and petrochemical processes provides a detailed description of the interfaces and connections between crude oil refining and petrochemicals it offers a view of global and regional markets and economic opportunities for synergies between these sectors features shows a global and regional market outlook for crude oil refining and petrochemical sectors explores economic and market opportunities for taking advantage of the synergies between both sectors analyzes the technical challenges and opportunities that come with these synergies gives an outlook and prediction of what companies will be able to achieve in the mid term future provides introductory and explanatory material as well as in depth insight into future technology and market developments this book serves as a reference for professionals in chemical engineering oil and gas engineering and industrial chemistry it aims to help engineers and industry professionals understand the challenges and the potential benefits of developing expansion or optimization projects that may bridge the gap between refining and

petrochemicals

the challenge for both effluent purification and cooling water conditioning is the search for minimum makeup water consumption and consequently optimum effluent recovery in order to ensure better environmental protection

petroleum refining or oil refining is an industrial process in which crude oil is extracted from the ground and transformed and refined into useful products like liquefied petroleum gas lpg kerosene asphalt base jet fuel gasoline heating oil fuel oils etc crude oil consists of hydrocarbon molecules this book includes the purpose and operation of the major refining technologies fluidized catalytic cracking hydrocracking delayed coking catalytic reforming alkylation hydrotreating and of course the crude and vacuum units how different hydrocarbon streams flow through the refinery refinery margin how it is calculated and optimization how the refinery generates a profit

petroleum refining and the petrochemical industry account for a major share in the world energy and industrial market in many situations they represent the economy back bone of industrial countries today the volatile environment of the market and the continuous change in customer requirements lead to constant pressure to seek opportunities that properly align and coordinate the different components of the industry in particular petroleum refining and petrochemical industry coordination and integration is gaining a great deal of interest however previous research in the field either studied the two systems in isolation or assumed limited interactions between them the aim of this thesis is to provide a framework for the planning integration and coordination of multisite refinery and petrochemical networks using proper deterministic stochastic and robust optimization techniques the contributions of this dissertation fall into three categories namely a multisite refinery planning b petrochemical industry planning and c integration and coordination of multisite refinery and petrochemical networks

this book addresses corrosion problems and their solutions at facilities in the oil refining and petrochemical industry including cooling water and boiler feed water units further it describes and analyzes corrosion control actions corrosion monitoring and corrosion management corrosion problems are a perennial issue in the oil refining and

petrochemical industry as they lead to a deterioration of the functional properties of metallic equipment and harm the environment both of which need to be protected for the sake of current and future generations accordingly this book examines and analyzes typical and atypical corrosion failure cases and their prevention at refineries and petrochemical facilities including problems with pipelines tanks furnaces distillation columns absorbers heat exchangers and pumps in addition it describes naphthenic acid corrosion stress corrosion cracking hydrogen damages sulfidic corrosion microbiologically induced corrosion erosion corrosion and corrosion fatigue occurring at refinery units at last fouling corrosion and cleaning are discussed in this book

petroleum refining with no new refineries having been built in decades companies continue to build onto or reverse engineer and re tool existing refineries with so many changes in the last few years alone books like this are very much in need there is truly a renaissance for chemical and process engineering going on right now across multiple industries this fifth and final volume in the petroleum refining design and applications handbook set this book continues 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 besides the list below this groundbreaking new volume describes blending of products from the refinery applying the ternary diagrams and classifications of crude oils flash point blending pour point blending aniline point blending smoke point and viscosity blending cetane and diesel indices the volume further reviews refinery operational cost cost allocation of actual usage project and economic evaluation involving cost estimation cash flow involving return on investment net present values discounted cash flow rate of return net present values payback period inflation and sensitivity analysis and so on it reviews global effects on the refining economy carbon tax carbon foot print global warming potential carbon dioxide equivalent carbon credit carbon offset carbon price and so on it reviews sustainability in petroleum refining and alternative fuels biofuels and so on impact of the overall greenhouse effects carbon capture and storage in refineries process intensification in biodiesel biofuel from green diesel acid gas removal and emerging technologies carbon capture and storage gas heated reformer unit pressure swing adsorption process steam methane reforming for fuel cells grey blue and green hydrogen production new technologies for carbon capture and storage carbon clean

process design refinery of the future refining and petrochemical industry characteristics the text is packed with excel spreadsheet calculations and honeywell unisim design software in some examples and it includes an invaluable glossary of petroleum and petrochemical technical terminologies 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

catalysis plays an increasingly critical role in modern petroleum refining and basic petrochemical industries as market demands for and specifications of petroleum and petrochemical products are continuously changing as we enter the 21st century new challenges for catalysis science and technology are anticipated in almost every field particularly better utilization of petroleum resources and demands for cleaner transportation fuels are major items it was against this background that the 2nd international conference on catalysts in petroleum refining and petrochemical industries was organized the conference was attended by around 300 specialists in the catalysis field from both academia and industry from over 30 countries it provided a forum for the exchange of ideas between scientists and engineers from the region with their counterparts from industrialized countries the papers from the conference which were carefully selected from around 100 submissions were refereed in terms of scientific and technical content and format in accordance with internationally accepted standards they comprise a mix of reviews providing an overview of selected areas original fundamental research results and industrial experiences

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

modern petrochemical technology a text that explores the essence of petrochemicals and petrochemical technology modern petrochemical technology methods manufacturing and applications is a comprehensive resource that provides an overview of the uses for common petrochemical building blocks a review of the marketplaces and offers a survey of the technology used to make the key petrochemical building blocks the book contains both critical information the technologies used to produce petrochemicals how the various petrochemicals are applied in industry and provides illustrative examples and problems designed to reinforce the learning about the basic science engineering and use of petrochemicals the book explores three separate petrochemical building block olefin complexes aromatic complexes and synthesis gas complexes and examines the interconnected nature of these building blocks the authors also include information on the olefins productions using steam cracking paraffin dehydrogenation and methanol to olefins technologies and describes various methods commercial processes to produce aromatics such as benzene toluene and xylene and much more this important book offers a guide to the critical information on petrochemical producing technologies includes material on various petrochemicals from the industrial point of view explores the separation processes membrane technology absorption technology liquid liquid extraction and more contains material from a team of noted experts provides a survey of examples of commercialization applications of petrochemicals written for chemical engineers chemists in industry membrane scientists and process engineers modern petrochemical technology provides an overview of markets and uses for common petrochemical building blocks as well as includes a survey of the technology used to make the key petrochemical building blocks

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 and the petrochemical industry play an important role in the current world economy they provide the platform to convert basic raw materials into many essential products ranging from transportation fuels such as gasoline jet fuel diesel and gas oil to basic and intermediate materials for petrochemical industries and many other valuable chemical products advanced catalysis processes in petrochemicals and petroleum refining emerging research and opportunities is an essential comprehensive research publication that provides knowledge on refining processes that could be integrated by the petrochemical industry and discusses how to integrate refining products with petrochemical industries through the use of new technologies featuring a range of topics such as biofuel production environmental sustainability and biorefineries this book is ideal for engineers chemists industry professionals policymakers researchers academicians and petrochemical companies provided by publisher

this book is part of a two volume work that offers a unique blend of information on realistic evaluations of catalyst based synthesis processes using green chemistry principles and

the environmental sustainability applications of such processes for biomass conversion refining and petrochemical production the volumes provide a comprehensive resource of state of the art technologies and green chemistry methodologies from researchers academics and chemical and manufacturing industrial scientists the work will be of interest to professors researchers and practitioners in clean energy catalysis green chemistry chemical engineering and manufacturing and environmental sustainability this volume focuses on catalyst synthesis and green chemistry applications for petrochemical and refining processes while most books on the subject focus on catalyst use for conventional crude fuel oriented refineries this book emphasizes recent transitions to petrochemical refineries with the goal of evaluating how green chemistry applications can produce clean energy through petrochemical industrial means the majority of the chapters are contributed by industrial researchers and technicians and address various petrochemical processes including hydrotreating hydrocracking flue gas treatment and isomerization catalysts

refineries must not only adapt to evolving environmental regulations for cleaner product specifications and processing but also find ways to meet the increasing demand for petroleum products particularly for liquid fuels and petrochemical feedstocks the chemistry and technology of petroleum fourth edition offers a 21st century perspective

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

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