



# Modern Petroleum Technology

Volume 1: Refining and Petrochemicals

Edited by: [Name obscured]



# Modern Petroleum Technology Downstream

**Sibi G**

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## **Modern Petroleum Technology Downstream:**

*Modern Petroleum Technology: Downstream* Richard A. Dawe, Alan G. Lucas, 2000      Modern Petroleum Technology  
Alan G. Lucas, 2000      **Modern Petroleum Technology, Downstream** Institute of Petroleum (IP), 2002-10-25 The  
Downstream volume of this definitive reference provides the most authoritative and up to date review of the latest technology  
used within the downstream side of the international petroleum industry It looks at refining the raw material and producing  
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with all aspects of their area of petroleum technology from the innovations in technology to the environmental issues surrounding its practical application Modern Petroleum Technology considers the current challenges and opportunities presented by new technology enabling everyone in the industry from the busy chief executive to the petroleum engineer to stay in touch with developments outside their own area of expertise Modern Petroleum Technology's concise and comprehensive overview will also be of special value to analysts strategists lecturers and students oil and gas consultants and legal and financial service providers *Modern Petroleum Technology* George Douglas Hobson, 1984 This updated and expanded edition tackles the increasingly complex maze of federal and state fund raising regulations It details federal and state laws with an emphasis on administrative tax and constitutional law It also explains state and federal rules impacting the responsibilities of fund raising professionals as well as explores compliance issues prospective laws and regulatory trends

Introduction to Petroleum Biotechnology James G. Speight, Nour Shafik El-Gendy, 2017-12-11 Introduction to Petroleum Biotechnology introduces the petroleum engineer to biotechnology bringing together the various biotechnology methods that are applied to recovery refining and remediation in the uses of petroleum and petroleum products A significant amount of petroleum is undiscoverable in reservoirs today using conventional and secondary methods This reference explains how microbial enhanced oil recovery is aiding to produce more economical and environmentally friendly metabolic events that lead to improved oil recovery Meanwhile in the downstream side of the industry petroleum refining operators are facing the highest levels of environmental regulations while struggling to process more of the heavier crude oils since conventional physical and chemical refining techniques may not be applicable to heavier crudes This reference proposes to the engineer and refining manager the concepts of bio refining applications to not only render heavier crudes as lighter crudes through microbial degradation but also through biodenitrogenation biometallization and biodesulfurization making more petroleum derivatives purified and upgraded without the release of more pollutants Equipped for both upstream and downstream to learn the basics this book is a necessary primer for today's petroleum engineer Presents the fundamentals behind petroleum biotechnology for both upstream and downstream oil and gas operations Provides the latest technology in reservoir recovery using microbial enhanced oil recovery methods Helps readers gain insight into the current and future application of using biotechnology as a refining and fuel blending method for heavy oil and tar sands Bioremediation of Petroleum and Petroleum Products James G. Speight, Karuna K. Arjoon, 2012-11-07 With petroleum related spills explosions and health issues in the headlines almost every day the issue of remediation of petroleum and petroleum products is taking on increasing importance for the survival of our environment our planet and our future This book is the first of its kind to explore this difficult issue from an engineering and scientific point of view and offer solutions and reasonable courses of action This book will guide the reader through the various methods that are used for the bioremediation of petroleum and petroleum products The text is easy to read and includes many up to date and topical references This book introduces the

reader to the science and technology of biodegradation a key process in the bioremediation of petroleum and petroleum based contaminants at spill sites The contaminants of concern in the molecularly variable petroleum and petroleum products can be degraded under appropriate conditions But the success of the process depends on the ability to determine the necessary conditions and establish them in the contaminated environment Although the prime focus of the book is to determine the mechanism extent and efficiency of biodegradation it is necessary to know the composition of the original petroleum or petroleum product The laws of science dictate what can or cannot be done with petroleum and petroleum products to ensure that biodegradation hence bioremediation processes are effective The science of the composition of petroleum and petroleum products is at the core of understanding the chemistry of biodegradation and bioremediation processes Hence inclusion of petroleum analyses and properties along with petroleum product analyses and properties is a necessary part of this text Bioremediation of Petroleum and Petroleum Products Summarizes the pros and cons of remediation of petroleum and petroleum based products from an environmental perspective Gives examples of unethical behavior and how they should be corrected Offers arguments and elucidates engineering considerations on all sides of these difficult environmental and economic issues *Modern Petroleum Technology*, Set Institute of Petroleum (IP),2000-09-13 Reflecting the many changes in the technology of the oil and gas industry since its last publication in 1984 this new edition of Modern Petroleum Technology is the most authoritative and thoroughly up to date review of technical expertise employed across the whole of the international oil and gas industry Written by leading international experts from industry and academia all entries have been updated and many new entries have been added for this 6th edition The work is divided into two volumes Upstream and Downstream Upstream examines the different stages of the exploration and production processes involved in the location and extraction of raw materials including the latest applications employed in modern seismic technology and the production of heavy oils Downstream covers the process of refining the raw material and producing and supplying the end product from refineries to service stations Both volumes deal with all aspects of their area of petroleum technology from the innovations in technology to the environmental issues surrounding its practical application Modern Petroleum Technology considers the current challenges and opportunities presented by new technology enabling everyone in the industry from the busy chief executive to the petroleum engineer to stay in touch with developments outside their own area of expertise Modern Petroleum Technology s concise and comprehensive overview will also be of special value to analysts strategists lecturers and students oil and gas consultants and legal and financial service providers **Handbook of Petroleum Product Analysis** James G. Speight,2015-02-02 Introduces the reader to the production of the products in a refinery Introduces the reader to the types of test methods applied to petroleum products including the need for specifications Provides detailed explanations for accurately analyzing and characterizing modern petroleum products Rewritten to include new and evolving test methods Updates on the evolving test methods and new test methods as well as

the various environmental regulations are presented

**Environmental Analysis and Technology for the Refining Industry** James G. Speight, 2005-09-02 A timely hands on guide to environmental issues and regulatory standards for the petroleum industry Environmental analysis and testing methods are an integral part of any current and future refining activities Today's petroleum refining industry must be prepared to meet a growing number of challenges both environmental and regulatory Environmental Analysis and Technology for the Refining Industry focuses on the analytical issues inherent in any environmental monitoring or cleanup program as they apply to today's petroleum industry not only during the refining process but also during recovery operations transport storage and utilization Designed to help today's industry professionals identify test methods for monitoring and cleanup of petroleum based pollutants the book provides examples of the application of environmental regulations to petroleum refining and petroleum products as well as current and proposed methods for the mitigation of environmental effects and waste management Part I introduces petroleum technology refining and products and reviews the nomenclature used by refiners environmental scientists and engineers Part II discusses environmental technology and analysis and provides information on environmental regulation and the impact of refining Coverage includes In depth descriptions of analyses related to gaseous emissions liquid effluents and solid waste A checklist of relevant environmental regulations Numerous real world examples of the application of environmental regulations to petroleum refining and petroleum products An analysis of current and proposed methods of environmental protection and waste management

*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

*Handbook of Alternative Fuel Technologies* Sunggyu Lee, James G. Speight, Sudarshan K. Loyalka, 2007-03-23 In addition to enabling a clean and energy efficient future

alternative fuel sources are fast becoming a necessity for meeting today's growing demands for low cost and convenient energy. The Handbook of Alternative Fuel Technologies offers a thorough guide to the science and available technologies for developing alternatives to petroleum fuel sources.

*Environmental Biotechnology* Sibi G, 2022-11-30 This book approaches the topic of environmental biotechnology in a clear, integrated and meaningful way covering both the fundamentals and biochemical processes involved as well as the technologies themselves within different areas of application. As part of the framework, it also provides a thorough description of the pollution and its control and the role of microorganisms in a wide range of ecosystems and deterioration processes. Features: Focuses on the role of microorganisms in a wide range of ecosystems and deterioration processes. Explains underlying concepts of environment, interlinks them from an ecological point of view and describes the approaches for waste treatment. Describes the concepts and fate processes of environmental contaminants, contaminant patterns in soil, groundwater and surface water. Includes novel research findings and applications of biosurfactants. Discusses biodegradation as a key process in the bioremediation of recalcitrant compounds. This book is aimed at: Primarily Senior Undergraduates including Graduate Students and Researchers in Biotechnology, Environmental Science, Engineering, Conservation Biology, Microbiology, Waste Management and Ecology.

*Will Sustainability Fly?* Walter J. Palmer, 2016-02-11 While international negotiations to reduce greenhouse gas (GHG) emissions have been less than satisfactory, there is a presumption that a significant level of multi-lateral commitment will be realized at some point. International air and marine travel have been left to one side in past talks because the pursuit of agreement proceeds on the basis of commitment by sovereign nations and the effects of these specific commercial activities are by their nature difficult to corral and assign to specific national jurisdictions. However, air travel is increasing and unless something is done, emissions from this segment of our world economy will form a progressively larger percentage of the total, especially as emissions fall in other activities. This book focuses on fuel. The aim is to provide background in technical and policy terms from the broadest reliable sources of information available for the necessary discourse on society's reaction to the evolving aviation emissions profile. It considers what policy has been, why and how commercial air travel is committed to its current liquid fuel, how that fuel can be made without using fossil source materials and the barriers to change. It also advances some elements of policy remedies that make sense in providing an environmentally and economically sound way forward in a context that comprehends a more complete vision of sustainability than renewable fuels traditionally have. The goal of *Will Sustainability Fly?* is to broaden and contextualize the knowledge resource available to academics, policy makers, air industry leaders and stakeholders and interested members of the public.

*Project Finance for the International Petroleum Industry* Robert Clews, 2016-04-07 This overview of project finance for the oil and gas industry covers financial markets, sources and providers of finance, financial structures and capital raising processes. About US \$300 billion of project finance debt is raised annually across several capital intensive sectors including oil and gas, energy infrastructure and mining and the oil and gas industry.

represents around 30% of the global project finance market With over 25 year s project finance experience in international banking and industry author Robert Clews explores project finance techniques and their effectiveness in the petroleum industry He highlights the petroleum industry players risks economics and commercial legal arrangements With petroleum industry projects representing amongst the largest industrial activities in the world this book ties together concepts and tools through real examples and aims to ensure that project finance will continue to play a central role in bringing together investors and lenders to finance these ventures Combines the theory and practice of raising long term funding for capital intensive projects with insights about the appeal of project finance to the international oil and gas industry Includes case studies and examples covering projects in the Arctic East Africa Latin America North America and Australia Emphasizes the full downstream value chain of the industry instead of limiting itself to upstream and pipeline project financing Highlights petroleum industry players risks economics and commercial and legal arrangements *Petrochemistry* Martin

Bajus,2020-04-06 A comprehensive textbook on petrochemical conversion processes for petroleum and natural gas fractions as produced by refinery operations This innovative textbook provides essential links between the chemical sciences and chemical technology between petrochemistry and hydrocarbon technology The book brings alive key concepts forming the basis of chemical technology and presents a solid background for innovative process development In all chapters the processes described are accompanied by simplified flow schemes encouraging students to think in terms of conceptual process designs *Petrochemistry Petrochemical Processing Hydrocarbon Technology and Green Engineering* introduces students to a variety of topics related to the petrochemical industry hydrocarbon processing fossil fuel resources as well as fuels and chemicals conversion The first chapter covers the fundamentals and principals for designing several of the processes in the book including discussions on thermodynamics chemical kinetics reactor calculations and industrial catalysts The following chapters address recent advances in hydrocarbon technology energy technology and sources of hydrocarbons The book then goes on to discuss the petrochemical industry based on four basic pillars all derived from petroleum and natural gas Production of lower alkenes other sources of lower alkenes petrochemicals from C2 C3 alkenes Production of BTX aromatics chemicals from BTX aromatics C1 technology Diversification of petrochemicals The growing importance of sustainable technology process intensification and addressing greenhouse gas emissions is reflected throughout the book Written for advanced students working in the areas of petrochemistry hydrocarbon technology natural gas energy materials and technologies alternative fuels and recycling technologies the book is also a valuable reference for industrial practitioners in the oil and gas industry **Gas Cleaning Processes in Refining Technology** James G.

Speight,2024-11-26 This book focuses on the various refinery processes that are used for gas cleaning operations By understanding the use of gas cleaning processes this book will satisfy the needs of engineers and scientists at all levels from academia to the refinery and help them understand the initial various processes This accessible guide is written for managers



professionals and technicians as well as graduate students transitioning into the refining industry

**Key Features**

**Describes** gas streams produced in a crude oil refinery and from non refinery feedstocks

**Covers** gas condensate gas from biomass waste and landfill waste and details categorization by types of contaminants and by removal method

**Provides** an extensive glossary

**Discusses** the future of gas cleaning operations and the evolution of the industry

This series of eight books is designed to present descriptions of

- 1 the development of technologies for a variety of feedstocks including the viscous feedstocks which are often referred to as heavy feedstocks utilizing advanced pre treatment processing and hydrotreating
- 2 an analysis of the catalyst deactivation mechanism for developing optimum technologies for processing feedstocks with low reactivity
- 3 the development of advanced technologies applicable to the viscous feedstocks
- 4 the development of advanced hydrocracking processes for heavy feedstock upgrading
- 5 the development of innovative upgrading processes for the viscous feedstocks and
- 6 the role of biomass in the future refinery

Furthermore each book is a stand alone volume that will bring the reader further up to date and adds more data as well as processing options that may be the processes of the evolving twenty first century

As the eighth book in the series this book will focus on the various refinery processes that are used for gas cleaning operations

The target audience includes engineers scientists and students who want an update on crude oil processing and the direction of the industry in the next 50 years

Such personnel include

- 1 professionals in the refining industry
- 2 technicians in the refining industry
- 3 industry management personnel who need to understand the various processes and the role of these process in producing the desired feedstocks for further processing and the use of solvents to produce saleable products and
- 4 the academic staff and graduate students who are moving into the refining industry

Any non technical readers with help from the extensive glossary will also benefit from the series

*Oilfield Review* ,2002

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