

# Chemical Process Calculations By D C Sikdar

Right here, we have countless ebook **Chemical Process Calculations By D C Sikdar** and collections to check out. We additionally provide variant types and in addition to type of the books to browse. The satisfactory book, fiction, history, novel, scientific research, as well as various other sorts of books are readily comprehensible here.

As this **Chemical Process Calculations By D C Sikdar** , it ends stirring brute one of the favored book **Chemical Process Calculations By D C Sikdar** collections that we have. This is why you remain in the best website to see the unbelievable books to have.

*Crystallization Process Systems* - Alan G. Jones

2002-04-24

Particulate Crystal Characteristics; Fluid-particle

Transport Processes; Crystallization Principles

and Techniques; Crystal Formation Processes; Crystallizer Design and Operation; Solid-Liquid Separation Processes; Design of Crystallization Process Systems.

**Process Calculations** - V. Venkataramani 2011

**Intelligent Control Systems Using Soft Computing Methodologies** - Ali Zilouchian 2001-03-27

In recent years, intelligent control has emerged as one of the most active and fruitful areas of research and development. Until now, however, there has been no comprehensive text that explores the subject with focus on the design and

analysis of biological and industrial applications.

**Intelligent Control Systems Using Soft Computing Methodologies** does all that and more. Beginning with an overview of intelligent control

methodologies, the contributors present the fundamentals of neural networks, supervised and unsupervised learning, and recurrent networks.

They address various implementation issues, then explore design and verification of neural networks for a variety of applications, including medicine, biology, digital signal processing, object recognition, computer networking, desalination technology, and oil refinery and chemical

processes. The focus then shifts to fuzzy logic, with a review of the fundamental and theoretical aspects, discussion of implementation issues, and examples of applications, including control of autonomous underwater vehicles, navigation of space vehicles, image processing, robotics, and energy management systems. The book concludes with the integration of genetic algorithms into the paradigm of soft computing methodologies, including several more industrial examples, implementation issues, and open problems and open problems related to intelligent control technology. Suitable as a textbook or a

reference, Intelligent Control Systems explores recent advances in the field from both the theoretical and the practical viewpoints. It also integrates intelligent control design methodologies to give designers a set of flexible, robust controllers and provide students with a tool for solving the examples and exercises within the book.

**Organic Chemistry of Explosives** - Jai Prakash Agrawal 2007-01-11

Organic Chemistry of Explosives is the first text to bring together the essential methods and routes used for the synthesis of organic explosives in a

single volume. Assuming no prior knowledge, the book discusses everything from the simplest mixed acid nitration of toluene, to the complex synthesis of highly energetic caged nitro compounds. Reviews laboratory and industrial methods, which can be used to introduce aliphatic C-nitro, aromatic C-nitro, N-nitro, and nitrate ester functionality into organic compounds Discusses the advantages and disadvantages of each synthetic method or route, with scope, limitations, substrate compatibility and other important considerations Features numerous examples in the form of text, reaction diagrams, and tables.

Principles of Macroeconomics - Soumen Sikdar

2020-06-12

Principles of Macroeconomics is a lucid and concise introduction to the theoretical and practical aspects of macroeconomics. This revised and updated third edition covers key macroeconomic issues such as national income, investment, inflation, balance of payments, monetary and fiscal policies, economic growth and banking system. This book also explains the role of the government in guiding the economy along the path of stable prices, low unemployment, sustainable growth, and planned

development through many India-centric examples. Special attention has been given to macroeconomic management in a country linked to the global economy. This reader-friendly book presents a wide coverage of relevant themes, updated statistics, chapter-end exercises, and summary points modelled on the Indian context. It will serve as an indispensable introductory resource for students and teachers of macroeconomics.

Bioseparations Science and Engineering - Roger G. Harrison 2015-01-27

Designed for undergraduates, graduate students,

and industry practitioners, Bioseparations Science and Engineering fills a critical need in the field of bioseparations. Current, comprehensive, and concise, it covers bioseparations unit operations in unprecedented depth. In each of the chapters, the authors use a consistent method of explaining unit operations, starting with a qualitative description noting the significance and general application of the unit operation. They then illustrate the scientific application of the operation, develop the required mathematical theory, and finally, describe the applications of the theory in engineering practice, with an emphasis on design

and scaleup. Unique to this text is a chapter dedicated to bioseparations process design and economics, in which a process similar, SuperPro Designer® is used to analyze and evaluate the production of three important biological products. New to this second edition are updated discussions of moment analysis, computer simulation, membrane chromatography, and evaporation, among others, as well as revised problem sets. Unique features include basic information about bioproducts and engineering analysis and a chapter with bioseparations laboratory exercises. Bioseparations Science and

Engineering is ideal for students and professionals working in or studying bioseparations, and is the premier text in the field. *Crystallization* - Marcello Andreatta 2012-09-19 Crystallization is one of the most ancient and interdisciplinary topics of research known to mankind. Crystals can be organic or inorganic and may be produced from melts, liquid solutions, vapors or even in solid state. Notwithstanding its inherently high complexity, the crystallization process is part of our everyday lives, from ice making in our homes to the most state-of-the-art chemical and electronic industry. In this book, our

purpose was to present new insights to the reader, as well as crucial and very useful information for researchers working in this field, while simultaneously creating a comprehensive text about crystallization processes which may serve as a starting point for people with different backgrounds.

**Chemical Rocket Propulsion** - Luigi T. De Luca

2016-08-19

Developed and expanded from the work presented at the New Energetic Materials and Propulsion Techniques for Space Exploration workshop in June 2014, this book contains new

scientific results, up-to-date reviews, and inspiring perspectives in a number of areas related to the energetic aspects of chemical rocket propulsion. This collection covers the entire life of energetic materials from their conceptual formulation to practical manufacturing; it includes coverage of theoretical and experimental ballistics, performance properties, as well as laboratory-scale and full system-scale, handling, hazards, environment, ageing, and disposal. Chemical Rocket Propulsion is a unique work, where a selection of accomplished experts from the pioneering era of space propulsion and current

technologists from the most advanced international laboratories discuss the future of chemical rocket propulsion for access to, and exploration of, space. It will be of interest to both postgraduate and final-year undergraduate students in aerospace engineering, and practicing aeronautical engineers and designers, especially those with an interest in propulsion, as well as researchers in energetic materials.

*Bioavailability of Contaminants in Soils and Sediments* - National Research Council

2003-05-03

Bioavailability refers to the extent to which

humans and ecological receptors are exposed to contaminants in soil or sediment. The concept of bioavailability has recently piqued the interest of the hazardous waste industry as an important consideration in deciding how much waste to clean up. The rationale is that if contaminants in soil and sediment are not bioavailable, then more contaminant mass can be left in place without creating additional risk. A new NRC report notes that the potential for the consideration of bioavailability to influence decision-making is greatest where certain chemical, environmental, and regulatory factors align. The current use of



bioavailability in risk assessment and hazardous waste cleanup regulations is demystified, and acceptable tools and models for bioavailability assessment are discussed and ranked according to seven criteria. Finally, the intimate link between bioavailability and bioremediation is explored. The report concludes with suggestions for moving bioavailability forward in the regulatory arena for both soil and sediment cleanup.

### **CHEMICAL PROCESS CALCULATIONS - D. C.**

SIKDAR 2013-05-22

Keeping the importance of basic tools of process calculations—material balance and energy

balance—in mind, the text prepares the students to formulate material and energy balance theory on chemical process systems. It also demonstrates how to solve the main process-related problems that crop up in chemical engineering practice. The chapters are organized in a way that enables the students to acquire an in-depth understanding of the subject. The emphasis is given to the units and conversions, basic concepts of calculations, material balance with/without chemical reactions, and combustion of fuels and energy balances. Apart from numerous illustrations, the book contains

numerous solved problems and exercises which bridge the gap between theoretical learning and practical implementation. All the numerical problems are solved with block diagrams to reinforce the understanding of the concepts. Primarily intended as a text for the undergraduate students of chemical engineering, it will also be useful for other allied branches of chemical engineering such as polymer science and engineering and petroleum engineering. KEY FEATURES • Methods of calculation for stoichiometric proportions with practical examples from the Industry • Simplified method of solving

numerical problems under material balance with and without chemical reactions • Conversions of chemical engineering equations from one unit to another • Solution of fuel and combustion, and energy balance problems using tabular column

**Biophysics & Biophysical Chemistry** - D. Das  
1982

*The Prefrontal Cortex* - Joaquin M. Fuster 1997

**Bio-Inspired Innovation and National Security** -  
National Defense University 2010-10-01

Despite the vital importance of the emerging area

of biotechnology and its role in defense planning and policymaking, no definitive book has been written on the topic for the defense policymaker, the military student, and the private-sector bioscientist interested in the "emerging opportunities market" of national security. This edited volume is intended to help close this gap and provide the necessary backdrop for thinking strategically about biology in defense planning and policymaking. This volume is about applications of the biological sciences, here called "biologically inspired innovations," to the military. Rather than treating biology as a series of threats

to be dealt with, such innovations generally approach the biological sciences as a set of opportunities for the military to gain strategic advantage over adversaries. These opportunities range from looking at everything from genes to brains, from enhancing human performance to creating renewable energy, from sensing the environment around us to harnessing its power.

**Modeling, Control, and Optimization of Natural Gas Processing Plants - William A. Poe**

2016-09-09

Modeling, Control, and Optimization of Natural Gas Processing Plants presents the latest on the

evolution of the natural gas industry, shining a light on the unique challenges plant managers and owners face when looking for ways to optimize plant performance and efficiency, including topics such as the various feed gas compositions, temperatures, pressures, and throughput capacities that keep them looking for better decision support tools. The book delivers the first reference focused strictly on the fast-growing natural gas markets. Whether you are trying to magnify your plants existing capabilities or are designing a new facility to handle more feedstock options, this reference guides you by

combining modeling control and optimization strategies with the latest developments within the natural gas industry, including the very latest in algorithms, software, and real-world case studies. Helps users adapt their natural gas plant quickly with optimization strategies and advanced control methods Presents real-world application for gas process operations with software and algorithm comparisons and practical case studies Provides coverage on multivariable control and optimization on existing equipment Allows plant managers and owners the tools they need to maximize the value of the natural gas produced

*Nanostructures for Novel Therapy* - Denisa Ficai

2017-02-25

Nanostructures for Novel Therapy: Synthesis, Characterization and Applications focuses on the fabrication and characterization of therapeutic nanostructures, in particular, synthesis, design, and in vitro and in vivo therapeutic evaluation. The chapters provide a cogent overview of recent therapeutic applications of nanostructured materials that includes applications of nanostructured materials for wound healing in plastic surgery and stem cell therapy. The book explores the promise for more effective therapy

through the use of nanostructured materials, while also assessing the challenges their use might pose from both an economic and medicinal point of view. This innovative look at how nanostructured materials are used in therapeutics will be of great benefit to researchers, providing a greater understanding of the different ways nanomaterials could improve medical treatment, along with a discussion of the obstacles that need to be overcome in order to guarantee widespread availability. Outlines how the characteristics of nanostructures made from different materials gives particular properties that can be

successfully used in therapeutics Compares the properties of different nanostructures, allowing medicinal chemists and engineers to select which are most appropriate for their needs Highlights new uses of nanostructures within the therapeutic field, enabling the discovery of new, more effective drugs

**Principles of Chemical Separations with Environmental Applications** - Richard D. Noble  
2004-03-25

Chemical separations are of central importance in many areas of environmental science, whether it is the clean up of polluted water or soil, the

treatment of discharge streams from chemical processes, or modification of a specific process to decrease its environmental impact. This book is an introduction to chemical separations, focusing on their use in environmental applications. The authors first discuss the general aspects of separation technology as a unit operation. They also describe how property differences are used to generate separations, the use of separating agents, and the selection criteria for particular separation techniques. The general approach for each technology is to present the chemical and/or physical basis for the process and explain how to

evaluate it for design and analysis. The book contains many worked examples and homework problems. It is an ideal textbook for undergraduate and graduate students taking courses on environmental separations or environmental engineering.

**Wireless Sensor Networks** - Kazem Sohraby

2007-04-06

Infrastructure for Homeland Security

Environments Wireless Sensor Networks helps readers discover the emerging field of low-cost standards-based sensors that promise a high order of spatial and temporal resolution and

accuracy in an ever-increasing universe of applications. It shares the latest advances in science and engineering paving the way towards a large plethora of new applications in such areas as infrastructure protection and security, healthcare, energy, food safety, RFID, ZigBee, and processing. Unlike other books on wireless sensor networks that focus on limited topics in the field, this book is a broad introduction that covers all the major technology, standards, and application topics. It contains everything readers need to know to enter this burgeoning field, including current applications and promising

research and development; communication and networking protocols; middleware architecture for wireless sensor networks; and security and management. The straightforward and engaging writing style of this book makes even complex concepts and processes easy to follow and understand. In addition, it offers several features that help readers grasp the material and then apply their knowledge in designing their own wireless sensor network systems: \* Examples illustrate how concepts are applied to the development and application of \* wireless sensor networks \* Detailed case studies set forth all the

steps of design and implementation needed to solve real-world problems \* Chapter conclusions that serve as an excellent review by stressing the chapter's key concepts \* References in each chapter guide readers to in-depth discussions of individual topics This book is ideal for networking designers and engineers who want to fully exploit this new technology and for government employees who are concerned about homeland security. With its examples, it is appropriate for use as a coursebook for upper-level undergraduates and graduate students.

**Book Preservation Technologies - United States.**



Congress. Office of Technology Assessment 1988

Process Heat Transfer and Chemical Equipment Design - D.C. Sikdar

This book is students friendly. It also demonstrates how to solve the industry related problems that crop up in Chemical Engineering Practice. The chapters are organized in a simple way that enables the students to acquire an in depth understanding of the subject. The emphasis is given to the Basic concept of heat transfer, conduction, Insulations, Convection, Extended surface- Fins, Dimensionless group and

Dimensional analysis, Heat transfer analogy, Heat transfer with phase change, Heat transfer equipments, Design of heat transfer equipments and Radiation, all coming under the realm of Process Heat Transfer. Apart from the numerous illustrations, the book contains review questions, exercises and aptitude test in Chemical Engineering which bridge the gap between theoretical learning and practical implementation. All numerical problems are solved in a systematic manner to reinforce the understanding of the concepts. This book is primarily intended as a text book for the under graduate students of

Chemical Engineering. It will also be useful for other allied branches such as, Aeronautical Engineering, Mechanical Engineering, Petro Chemical, Polymer Science and Engineering, Bio-technology as well as Diploma in Chemical Engineering.

A TEXTBOOK OF CHEMICAL ENGINEERING  
THERMODYNAMICS - K. V. NARAYANAN

2013-01-11

Designed as an undergraduate-level textbook in Chemical Engineering, this student-friendly, thoroughly class-room tested book, now in its second edition, continues to provide an in-depth

analysis of chemical engineering thermodynamics. The book has been so organized that it gives comprehensive coverage of basic concepts and applications of the laws of thermodynamics in the initial chapters, while the later chapters focus at length on important areas of study falling under the realm of chemical thermodynamics. The reader is thus introduced to a thorough analysis of the fundamental laws of thermodynamics as well as their applications to practical situations. This is followed by a detailed discussion on relationships among thermodynamic properties and an exhaustive

treatment on the thermodynamic properties of solutions. The role of phase equilibrium thermodynamics in design, analysis, and operation of chemical separation methods is also deftly dealt with. Finally, the chemical reaction equilibria are skillfully explained. Besides numerous illustrations, the book contains over 200 worked examples, over 400 exercise problems (all with answers) and several objective-type questions, which enable students to gain an in-depth understanding of the concepts and theory discussed. The book will also be a useful text for students pursuing courses in chemical

engineering-related branches such as polymer engineering, petroleum engineering, and safety and environmental engineering. New to This Edition • More Example Problems and Exercise Questions in each chapter • Updated section on Vapour–Liquid Equilibrium in Chapter 8 to highlight the significance of equations of state approach • GATE Questions up to 2012 with answers

**Green Engineering** - David T. Allen 2001-09-06

A chemical engineer's guide to managing and minimizing environmental impact. Chemical processes are invaluable to modern society, yet

they generate substantial quantities of wastes and emissions, and safely managing these wastes costs tens of millions of dollars annually. Green Engineering is a complete professional's guide to the cost-effective design, commercialization, and use of chemical processes in ways that minimize pollution at the source, and reduce impact on health and the environment. This book also offers powerful new insights into environmental risk-based considerations in design of processes and products. First conceived by the staff of the U.S. Environmental Protection Agency, Green Engineering draws on contributions from many

leaders in the field and introduces advanced risk-based techniques including some currently in use at the EPA. Coverage includes: Engineering chemical processes, products, and systems to reduce environmental impacts Approaches for evaluating emissions and hazards of chemicals and processes Defining effective environmental performance targets Advanced approaches and tools for evaluating environmental fate Early-stage design and development techniques that minimize costs and environmental impacts In-depth coverage of unit operation and flowsheet analysis The economics of environmental improvement

projects Integration of chemical processes with other material processing operations Lifecycle assessments: beyond the boundaries of the plant Increasingly, chemical engineers are faced with the challenge of integrating environmental objectives into design decisions. Green Engineering gives them the technical tools they need to do so.

**Process Engineering and Industrial Management -**  
Jean-Pierre Dal Pont 2013-03-04

Process Engineering, the science and art of transforming raw materials and energy into a vast array of commercial materials, was conceived at

the end of the 19th Century. Its history in the role of the Process Industries has been quite honorable, and techniques and products have contributed to improve health, welfare and quality of life. Today, industrial enterprises, which are still a major source of wealth, have to deal with new challenges in a global world. They need to reconsider their strategy taking into account environmental constraints, social requirements, profit, competition, and resource depletion. “Systems thinking” is a prerequisite for process development at the lab level to good project management. New manufacturing concepts

have to be considered, taking into account LCA, supply chain management, recycling, plant flexibility, continuous development, process intensification and innovation. This book combines experience from academia and industry in the field of industrialization, i.e. in all processes involved in the conversion of research into successful operations. Enterprises are facing major challenges in a world of fierce competition and globalization. Process engineering techniques provide Process Industries with the necessary tools to cope with these issues. The chapters of this book give a new approach to the

management of technology, projects and manufacturing. Contents Part 1: The Company as of Today 1. The Industrial Company: its Purpose, History, Context, and its Tomorrow?, Jean-Pierre Dal Pont. 2. The Two Modes of Operation of the Company – Operational and Entrepreneurial, Jean-Pierre Dal Pont. 3. The Strategic Management of the Company: Industrial Aspects, Jean-Pierre Dal Pont. Part 2: Process Development and Industrialization 4. Chemical Engineering and Process Engineering, Jean-Pierre Dal Pont. 5. Foundations of Process Industrialization, Jean-François Joly. 6. The

Industrialization Process: Preliminary Projects, Jean-Pierre Dal Pont and Michel Royer. 7. Lifecycle Analysis and Eco-Design: Innovation Tools for Sustainable Industrial Chemistry, Sylvain Caillol. 8. Methods for Design and Evaluation of Sustainable Processes and Industrial Systems, Catherine Azzaro-Pantel. 9. Project Management Techniques: Engineering, Jean-Pierre Dal Pont. Part 3: The Necessary Adaptation of the Company for the Future 10. Japanese Methods, Jean-Pierre Dal Pont. 11. Innovation in Chemical Engineering Industries, Oliver Potier and Mauricio Camargo. 12. The Place of Intensified Processes

in the Plant of the Future, Laurent Falk. 13. Change Management, Jean-Pierre Dal Pont. 14. The Plant of the Future, Jean-Pierre Dal Pont. *Design of Multiphase Reactors* - Vishwas G. Pangarkar 2015-01-27  
Details simple design methods for multiphase reactors in the chemical process industries  
Includes basic aspects of transport in multiphase reactors and the importance of relatively reliable and simple procedures for predicting mass transfer parameters  
Details of design and scale up aspects of several important types of multiphase reactors  
Examples illustrated through

design methodologies presenting different reactors for reactions that are industrially important. Includes simple spreadsheet packages rather than complex algorithms / programs or computational aid.

*Nanoporous Materials for Gas Storage* - Katsumi Kaneko 2019-05-08

This book shows the promising future and essential issues on the storage of the supercritical gases, including hydrogen, methane and carbon dioxide, by adsorption with controlling the gas-solid interaction by use of designed nanoporous materials. It explains the reason why the storage

of these gases with adsorption is difficult from the fundamentals in terms of gas-solid interaction. It consists of 14 chapters which describe fundamentals, application, key nanoporous materials (nanoporous carbon, metal organic frame works, zeolites) and their storage performance for hydrogen, methane, and carbon dioxide. Thus, this book appeals to a wide readership of the academic and industrial researchers and it can also be used in the classroom for graduate students focusing on clean energy technology, green chemistry, energy conversion and storage, chemical engineering,



nanomaterials science and technology, surface and interface science, adsorption science and technology, carbon science and technology, metal organic framework science, zeolite science, nanoporous materials science, nanotechnology, environmental protection, and gas sensors.

Carbon Dioxide Capture and Storage - IPCC

2005-12-19

IPCC Report on sources, capture, transport, and storage of CO<sub>2</sub>, for researchers, policy-makers and engineers.

**Immunoassay and Other Bioanalytical Techniques**

- Jeanette M. van Emon 2016-04-19

Taking an interdisciplinary approach that emphasizes the adaptability of immunochemical and related bioanalytical methods to a variety of matrices, *Immunoassay and Other Bioanalytical Techniques* describes the strength and the versatility of these methods in a wide range of environmental and biological measurement applications. With contribut

*Products and Applications of Biopolymers* - Casparus Verbeek 2012-03-07

It is interesting to consider that biopolymers are by no means new to this world. It is only because of our fascination with petrochemical products

that these wonderful materials have been neglected for so long. Today we face a different challenge. Environmental pressure is pushing away from synthetic or petro-chemically derived products, while economic factors are pulling back from often more expensive "green" options. This book presents two aspects of biopolymers; potential products and some applications of biopolymers covering the current relevance of biopolymers.

**Separation and Purification Technologies in Biorefineries - Shri Ramaswamy 2013-02-04**  
Separation and purification processes play a

critical role in biorefineries and their optimal selection, design and operation to maximise product yields and improve overall process efficiency. Separations and purifications are necessary for upstream processes as well as in maximising and improving product recovery in downstream processes. These processes account for a significant fraction of the total capital and operating costs and also are highly energy intensive. Consequently, a better understanding of separation and purification processes, current and possible alternative and novel advanced methods is essential for achieving the overall

techno-economic feasibility and commercial success of sustainable biorefineries. This book presents a comprehensive overview focused specifically on the present state, future challenges and opportunities for separation and purification methods and technologies in biorefineries. Topics covered include: Equilibrium Separations: Distillation, liquid-liquid extraction and supercritical fluid extraction. Affinity-Based Separations: Adsorption, ion exchange, and simulated moving bed technologies. Membrane Based Separations: Microfiltration, ultrafiltration and diafiltration, nanofiltration, membrane pervaporation, and

membrane distillation. Solid-liquid Separations: Conventional filtration and solid-liquid extraction. Hybrid/Integrated Reaction-Separation Systems: Membrane bioreactors, extractive fermentation, reactive distillation and reactive absorption. For each of these processes, the fundamental principles and design aspects are presented, followed by a detailed discussion and specific examples of applications in biorefineries. Each chapter also considers the market needs, industrial challenges, future opportunities, and economic importance of the separation and purification methods. The book concludes with a

series of detailed case studies including cellulosic bioethanol production, extraction of algae oil from microalgae, and production of biopolymers.

*Separation and Purification Technologies in Biorefineries* is an essential resource for scientists and engineers, as well as researchers and academics working in the broader conventional and emerging bio-based products industry, including biomaterials, biochemicals, biofuels and bioenergy.

*Chemical Reaction Engineering II -*

**Process Synthesis** - Morton M. Denn 1996-04-17

Volume 23 of *Advances in Chemical Engineering* covers the active field of process synthesis. There are currently three prevalent approaches to complex process synthesis strategies: heuristics-based selection, geometric representation, and optimization methods. This volume addresses a variety of these synthesis strategies for process subsystems, representing only a sample of the state-of-the-art of process synthesis research. The five papers in this volume address quite different process subsystems and application areas but still combine basic concepts related to a systematic approach. All five of the papers

develop successful synthesis methods for their respective cutting-edge applications. As a group, the papers serve to highlight many unresolved issues in process synthesis and also provide guidelines for future research.

Herbicides - Marcelo Larramendy 2011-01-08

The content selected in Herbicides, Theory and Applications is intended to provide researchers, producers and consumers of herbicides an overview of the latest scientific achievements.

Although we are dealing with many diverse and different topics, we have tried to compile this "raw material" into three major sections in search of

clarity and order - Weed Control and Crop Management, Analytical Techniques of Herbicide Detection and Herbicide Toxicity and Further Applications. The editors hope that this book will continue to meet the expectations and needs of all interested in the methodology of use of herbicides, weed control as well as problems related to its use, abuse and misuse.

**Chemistry of Petrochemical Processes** - Sami Matar, Ph.D. 2001-07-26

In Chemistry of Petrochemical Processes, readers find a handy and valuable source of information containing insights into petrochemical reactions

and products, process technology, and polymer synthesis. The book reviews and describes the reactions and processes involved in transforming petroleum-based hydrocarbons into the chemicals that form the basis of the multi-billion dollar petrochemical industry. In addition, the book includes information on new process developments for the production of raw materials and intermediates for petrochemicals that have surfaced since the book's first edition. Provides a quick understanding of the chemical reactions associated with oil and gas processing Contains insights into petrochemical reactions and

products, process technology, and polymer synthesis

*Handbook of Industrial Crystallization* - Allan Myerson 2002-01-08

Crystallization is an important separation and purification process used in industries ranging from bulk commodity chemicals to specialty chemicals and pharmaceuticals. In recent years, a number of environmental applications have also come to rely on crystallization in waste treatment and recycling processes. The authors provide an introduction to the field of newcomers and a reference to those involved in the various aspects

of industrial crystallization. It is a complete volume covering all aspects of industrial crystallization, including material related to both fundamentals and applications. This new edition presents detailed material on crystallization of biomolecules, precipitation, impurity-crystal interactions, solubility, and design. Provides an ideal introduction for industrial crystallization newcomers Serves as a worthwhile reference to anyone involved in the field Covers all aspects of industrial crystallization in a single, complete volume

Process Intensification - David Reay 2013-06-05

Process Intensification: Engineering for Efficiency, Sustainability and Flexibility is the first book to provide a practical working guide to understanding process intensification (PI) and developing successful PI solutions and applications in chemical process, civil, environmental, energy, pharmaceutical, biological, and biochemical systems. Process intensification is a chemical and process design approach that leads to substantially smaller, cleaner, safer, and more energy efficient process technology. It improves process flexibility, product quality, speed to market and inherent safety, with a reduced

environmental footprint. This book represents a valuable resource for engineers working with leading-edge process technologies, and those involved research and development of chemical, process, environmental, pharmaceutical, and bioscience systems. No other reference covers both the technology and application of PI, addressing fundamentals, industry applications, and including a development and implementation guide Covers hot and high growth topics, including emission prevention, sustainable design, and pinch analysis World-class authors: Colin Ramshaw pioneered PI at ICI and is widely

credited as the father of the technology

**Introduction to Process Calculations**

**Stoichiometry - KA. Gavhane 2012**

*STOICHIOMETRY AND PROCESS*

*CALCULATIONS - K. V. NARAYANAN*

2006-01-01

This textbook is designed for undergraduate courses in chemical engineering and related disciplines such as biotechnology, polymer technology, petrochemical engineering, electrochemical engineering, environmental engineering, safety engineering and industrial



chemistry. The chief objective of this text is to prepare students to make analysis of chemical processes through calculations and also to develop in them systematic problem-solving skills. The students are introduced not only to the application of law of combining proportions to chemical reactions (as the word 'stoichiometry' implies) but also to formulating and solving material and energy balances in processes with and without chemical reactions. The book presents the fundamentals of chemical engineering operations and processes in an accessible style to help the students gain a

thorough understanding of chemical process calculations. It also covers in detail the background materials such as units and conversions, dimensional analysis and dimensionless groups, property estimation, P-V-T behaviour of fluids, vapour pressure and phase equilibrium relationships, humidity and saturation. With the help of examples, the book explains the construction and use of reference-substance plots, equilibrium diagrams, psychrometric charts, steam tables and enthalpy composition diagrams. It also elaborates on thermophysics and thermochemistry to acquaint the students with the

thermodynamic principles of energy balance calculations. Key Features : • SI units are used throughout the book. • Presents a thorough introduction to basic chemical engineering principles. • Provides many worked-out examples and exercise problems with answers. • Objective type questions included at the end of the book serve as useful review material and also assist the students in preparing for competitive examinations such as GATE.

*Energy Technology 3/e: Nonconventional, Renewable And Conventional* - S Rao

**Industrial Crystallization** - Narayan S. Tavare

2013-11-11

Incorporating all recent developments and applications of crystallization technology, this volume offers a clear account of the field's underlying principles, reviews of past and current research, and provides guidelines for equipment and process design. The book takes a balanced functional approach in its critical survey of research literature, and includes several problems based on real practical situations that illustrate theoretical development. Several new concepts and techniques used in process simulation and

identification analysis are featured.

### **Energy Efficiency and Sustainable Lighting -**

Manuel J. Hermoso-Orzáez 2020-03-25

The lighting of both exteriors and interiors is a field within electrical and lighting engineering, where important technological changes have been taking place oriented towards environmental sustainability and energy efficiency. LED technology has been gradually gaining ground in the world of lighting over other technologies due to its high lighting and energy efficiency and savings. However, some problems related to overheating or associated regulation are

emerging. This has prompted the search for new, more efficient, and sustainable forms of lighting.

This book presents successful cases related to energy efficiency and lighting that may be of great interest to those trying to enter the world of scientific research.

### Best Practice Guide on the Control of Arsenic in

Drinking Water - Prosun Bhattacharya 2017-07-15

Arsenic in drinking water derived from groundwater is arguably the biggest environmental chemical human health risk known at the present time, with well over 100,000,000 people around the world being exposed.

Monitoring the hazard, assessing exposure and health risks and implementing effective remediation are therefore key tasks for organisations and individuals with responsibilities related to the supply of safe, clean drinking water. Best Practice Guide on the Control of Arsenic in Drinking Water, covering aspects of hazard distribution, exposure, health impacts, biomonitoring and remediation, including social and economic issues, is therefore a very timely contribution to disseminating useful knowledge in this area. The volume contains 10 short reviews of key aspects of this issue, supplemented by a

further 14 case studies, each of which focusses on a particular area or technological or other practice, and written by leading experts in the field. Detailed selective reference lists provide pointers to more detailed guidance on relevant practice. The volume includes coverage of (i) arsenic hazard in groundwater and exposure routes to humans, including case studies in USA, SE Asia and UK; (ii) health impacts arising from exposure to arsenic in drinking water and biomonitoring approaches; (iii) developments in the nature of regulation of arsenic in drinking water; (iv) sampling and monitoring of arsenic,

including novel methodologies; (v) approaches to remediation, particularly in the context of water safety planning, and including case studies from

the USA, Italy, Poland and Bangladesh; and (vi) socio-economic aspects of remediation, including non-market valuation methods and local community engagement.