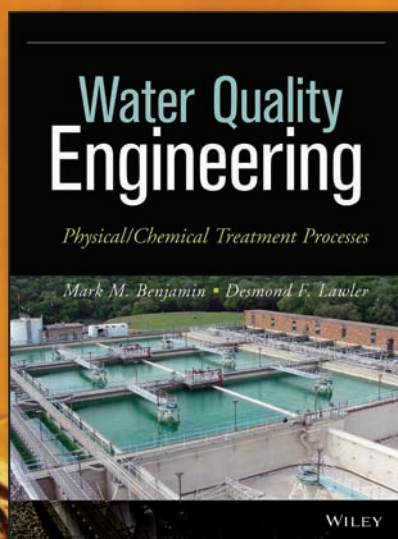
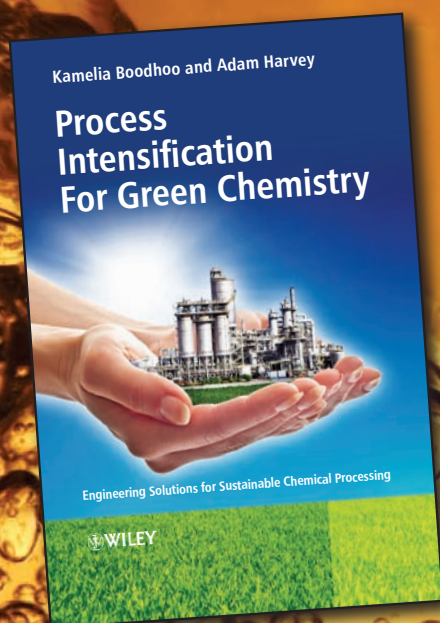


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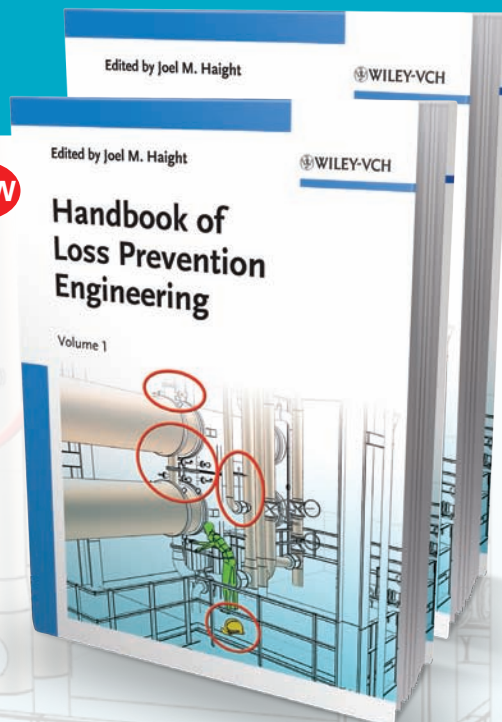
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Handbook of Loss Prevention Engineering

Handbook of Loss Prevention Engineering can help any organization in any industry avoid monetary loss and structural or physical harm due to fire, explosion, toxic release, natural disaster, terrorism, or other security threats. It is your one-stop source on loss prevention principles, policies, practices, programs, and methodology. As such, this handbook discusses engineering precautions for manufacturing, construction, mining, defense, health care, transportation, and quantification, covering the topics to a depth that allows for their ready implementations while citing additional references should more information be required. The format of the book lets readers easily find the information they need to complete their loss prevention analysis, project, process, or design.

NEW



Handbook of Loss Prevention Engineering

Two-Volume Set

Joel M. Haight, Editor

Hardcover 1154 pp 2013 ISBN 978-3-527-32995-3

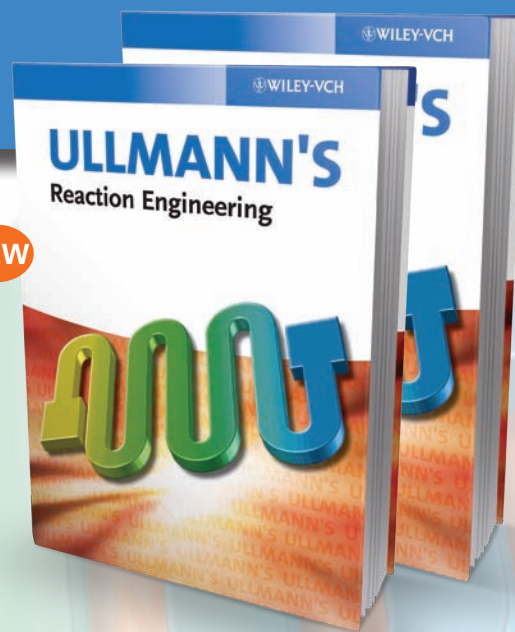
€329.00/£245.00/CAD \$446.00/USD \$405.00

Ullmann's Reaction Engineering

Derived from the renowned
Ullmann's Encyclopedia of Industrial Chemistry

Concise and direct, this two-volume set is comprised of specially targeted best-of articles gleaned from the online edition of the acclaimed *Ullmann's Encyclopedia of Industrial Chemistry*. Specially compiled for the desk of the chemical engineer, this ready reference contains a wealth of information on industrial scale chemical reactions, their development, management, and optimization. The first volume of the set covers the basic processes of reaction engineering and reactor types, while the second addresses energy management, process development and intensification, and process safety. Approximately 75 percent of the articles were published or extensively updated between 2010 and 2012.

NEW

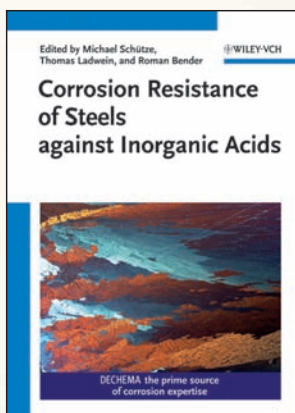


Ullmann's Reaction Engineering

Two-Volume Set

Hardcover 1200 pp 2013 ISBN 978-3-527-33371-4

€349.00/£285.00/CAD \$523.00/USD \$475.00



Corrosion Resistance of Steels against Inorganic Acids



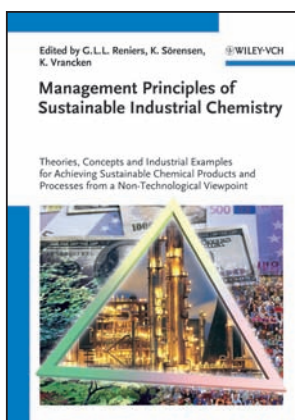
Michael Schütze,
Thomas L. Ladwein,
Roman Bender, Editors

Derived from the renowned
DECHEMA Corrosion Handbook.

Steel is one of the most widely used construction materials, with more than 1.3 billion tons produced each year. As steel corrodes in various atmospheres, in water, and in soil, its corrosion resistance against the

four most common chemicals, inorganic acids, and mixed acids is essential and a crucial financial factor for many industries. Understanding how to strengthen the corrosion resistance of steel is key for all industries involved. This book is, therefore, a must-have for all mechanical, civil, and chemical engineers; materials scientists; and chemists working with steel or acidic media.

Hardcover 682 pp 2012 ISBN 978-3-527-33520-6 €229.00/£190.00/CAD \$347.00/USD \$315.00



Management Principles of Sustainable Industrial Chemistry

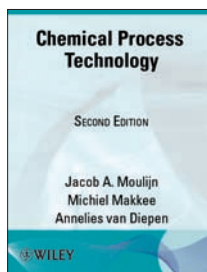


Genserik L. L. Reniers,
Kenneth Sørensen, Karl Vrancken,
Editors

Exploring sustainability from the perspectives of engineering and multiple scientific disciplines, this book incorporates the concepts of intergenerational equity and ecological capabilities. All the while, it promotes scientific rigor for

the analysis of sustainability and explains the use of appropriate metrics to determine the comparative merits of alternatives. The chapters are organized around the key non-technological themes of sustainable industrial chemistry and provide an overview of the managerial principles that can enhance sustainability in the chemicals sector. It is your one-stop guide to greener, cleaner, more economically viable and efficient chemical production.

Hardcover 280 pp 2013 ISBN 978-3-527-33099-7 €79.00/£65.00/CAD \$138.00/USD \$125.00



Chemical Process Technology



SECOND EDITION

Jacob A. Moulijn, Michiel Makkee,
Annelies van Diepen

This richly illustrated guide examines both large- and small-scale chemical and biotechnology manufacturers, bringing to life the concepts that form the basis of the process industry. Emphasis is on chemical reactions and the reactor, but coverage also includes feed pre-treatment and product separation. The book features a comprehensive, balanced introduction to the subject that demonstrates the essential link between chemistry and the chemical industry itself. A wealth of case studies taken from a variety of manufacturers, along with workable problems, enhance understanding. Completely updated, this edition also has more questions, along with new chapters on processes for the conversion of biomass and process intensification.

Hardcover 580 pp 2013 ISBN 978-1-4443-2024-4 €142.00/£110.00/CAD \$176.00/USD \$160.00

Paperback 580 pp 2013 ISBN 978-1-4443-2025-1 €51.90/£39.95/CAD \$66.00/USD \$60.00



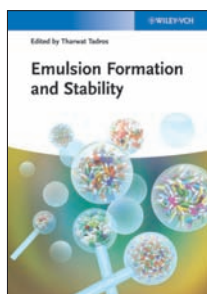
The Future of the Chemical Industry by 2050



Rafael Cayuela Valencia

A crystal ball in book form, this work proffers several fascinating scenarios of how the world may look in the year 2050 and how the chemical industry will play a pivotal role. Specifically, the author examines some of the biggest challenges likely to face mankind in the years to come—climate change, aging populations, resource scarcity, pandemics, famine—and shows how chemistry will impact these megatrends. Conversely, he also shows how the megatrends will impact the industry itself, examining its future relevance from economical, technological, and ecological points of view.

Hardcover 350 pp 2013 ISBN 978-3-527-33257-1 €59.00/£50.00/CAD \$94.00/USD \$85.00



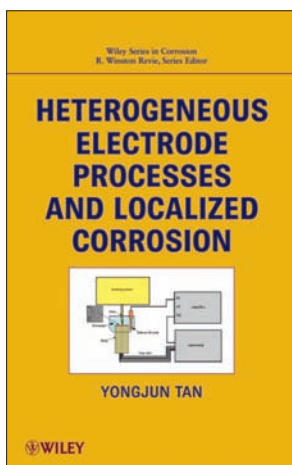
Topics in Colloid and Interface Science



Tharwat F. Tadros, Editor

Given the many forms and functions of colloids, colloidal chemistry involves a great number of disciplines, including chemistry, physics, materials sciences, and biology. Highlighting recent developments, as well as future challenges, this series of volumes on the subject covers such topics as emulsions, nano-emulsions, nano-dispersions, and novel techniques for their investigation. This particular volume addresses the formulation of emulsions with some emphasis on drug delivery. It also treats interfacial phenomena, covering adsorption and conformation of surfactants and polymers; interaction forces between emulsion droplets; and the preparation of emulsions. Nano-emulsions, structure and rheology, and new emulsifiers are also explored.

Hardcover 272 pp 2013 ISBN 978-3-527-31991-6 €109.00/£85.00/CAD \$154.00/USD \$140.00



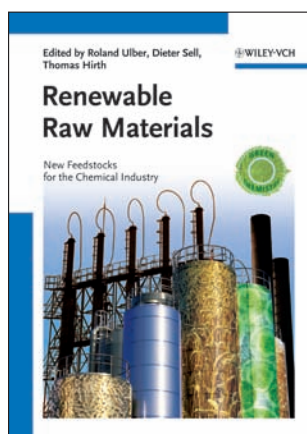
Heterogeneous Electrode Processes and Localized Corrosion

Yongjun Mike Tan, R. Winston Revie

Heterogeneous Electrode Processes and Localized Corrosion begins with a review of homogeneous electrode models and uniform corrosion measurements and then explores probing electrode inhomogeneity, electrochemical heterogeneity, and localized corrosion. Next, the book examines imaging localized corrosion using electrochemically integrated multi-electrode arrays. It shows how to measure thermo-

dynamic and kinetic parameters of localized corrosion processes. It explores versatile heterogeneous electrode processes and explains the sensing of versatile heterogeneous electrode processes. You'll also discover how to design experiments that unveil localized corrosion and its inhibition in inhomogeneous media. Case studies and instructive examples abound.

Hardcover 264 pp 2012 ISBN 978-0-470-64795-0 €109.00/£83.00/CAD \$138.00/USD \$125.00



Renewable Raw Materials

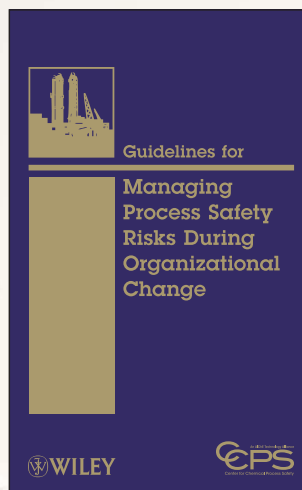
New Feedstocks for the Chemical Industry

Roland Ulber, Dieter Sell, Thomas Hirth, Editors

The go-to source for those wishing to familiarize themselves with the state of science and technology in the conversion of renewable raw materials, this contemporary overview's emphasis is on cradle-to-grave life cycle assessments of existing or conceptual processes for producing value-added fuels, chemicals, and/or materials from

renewable agricultural residues, plant-based industrial processing wastes, and other sources. It presents the key concepts, systems, and technologies of renewable raw materials, focusing on new feedstocks for the chemical industry. The result is coverage of the topic from a broad perspective, highlighting technical aspects and considering the market place and socio-economic aspects.

Hardcover 244 pp 2011 ISBN 978-3-527-32548-1 €109.00/£90.00/CAD \$198.00/USD \$180.00



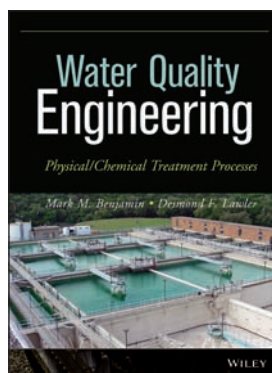
Guidelines for Managing Process Safety Risks During Organizational Change

Center for Chemical Process Safety (CCPS)

Practical and readily implementable, the guidelines detailed in this book will help you develop an effective organizational change management (OCM) system for your place of work, no matter the scale. Included are best-practice examples of OCM systems drawn from CCPS-member companies and industry studies. The guide also offers information on how to

augment existing management of change (MOC) systems or how to develop a separate OCM system. A sampling of major topic areas includes the modification of working conditions; personnel changes; task allocation changes; and much, much more. Real-world case studies and references to other supporting works further enhance the value of this spot-on offering.

Hardcover 264 pp 2013 ISBN 978-1-118-37909-7 €87.90/£66.95/CAD \$109.95/USD \$99.95



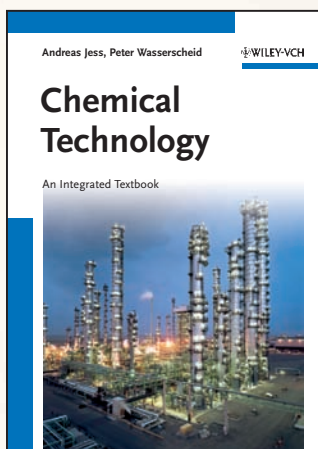
Water Quality Engineering: Physical / Chemical Treatment Processes

Mark M. Benjamin, Desmond F. Lawler

Beginning with the generic means for investigating water to complex processes for the removal of soluble and particulate materials, *Water Quality Engineering: Physical/Chemical Treatment Processes* provides a comprehensive overview of the physical and chemical processes for treating

water and wastewater. The authors describe the fundamental and mathematical theory behind water treatment methods and includes examples illustrating common calculations related to each process, as well as more concrete, real-world examples in each chapter. The text provides a theoretical underpinning of practice, making it a valuable reference for working environmental engineers.

Hardcover 896 pp 2013 ISBN 978-1-118-16965-0 €149.00/£113.00/CAD \$187.00/US \$170.00



Chemical Technology

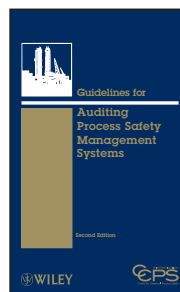
An Integrated Textbook

**Andreas Jess,
Peter Wasserscheid**

Good textbooks that combine chemistry and engineering for an integrated course in chemical technology are rare and this innovative work is a notable exception. Here, about 30 industrial processes and their design are analyzed and they all differ with respect to at least to one important aspect,

such as the type and design of the reactor, the chemistry involved, or the separation process used. Instructive figures, rules of thumb, and examples utilizing data from industrial processes facilitate and enhance study.

Hardcover 888 pp 2013 ISBN 978-3-527-30446-2 €79.90/€65.00/CAD \$116.00/USD \$105.00



Guidelines for Auditing Process Safety Management Systems

SECOND EDITION

Center for Chemical Process Safety (CCPS)

Select the best methodology for a given audit with the fundamental skills, techniques, and tools of auditing and the characteristics of a good process safety management system. You'll also get an update of the original CCPS Auditing Guideline project since the implementation of OSHA PSM regulation, and a CD-ROM featuring checklists for both the audit program and the audit itself.



Hardcover w/CD-ROM 900 pp 2011 ISBN 978-0-470-28235-9
€129.00/€100.00/CAD \$174.00/USD \$158.00

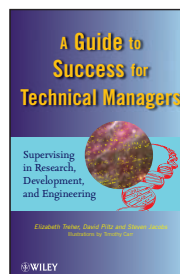


The MAK-Collection for Occupational Health and Safety

Part I: MAK Value Documentations, Volume 27

Andrea Hartwig

Hardcover 320 pp 2012 ISBN 978-3-527-32308-1 €159.00/€140.00/CAD \$242.00/USD \$220.00



A Guide to Success for Technical Managers

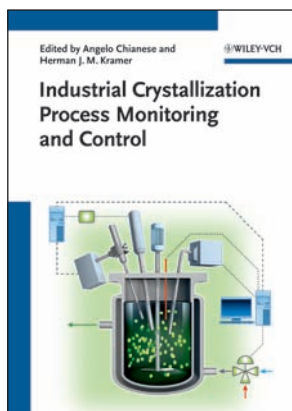
Supervising in Research, Development, and Engineering

Elizabeth Treher, David Piltz, Steven Jacob

Like all managers, it is crucial for technical managers or supervisors to be versed in specific management techniques in order to build self-awareness and supervisory skills in key areas.

A Guide to Success for Technical Managers is a comprehensive guide on managing technical personnel, such as scientists, programmers, and engineers, who tend to be independent individuals by nature. It explains the pitfalls and challenges of managing technical personnel, including how to monitor their work, and outlines the qualities needed to motivate personnel in a R&D environment as compared to other areas of business. Templates and checklists help ensure your success.

Hardcover 318 pp 2010 ISBN 978-0-470-43776-6 €53.90/€40.50/CAD \$68.95/USD \$62.95



Industrial Crystallization Process Monitoring and Control

**Angelo Chianese,
Herman J. Kramer, Editors**

This exacting reference draws on the research and industrial practice of a large group of experts in the industrial crystallization processes, capturing the essence of current trends, the markets, design tools, and technologies in this key field. Along the way, it outlines trouble-free

production, provides laboratory controls, includes case studies, and discusses new challenges. First the instrumentation and techniques used to measure crystal size distribution, the nucleation and solubility points, and the chemical composition of the solid and liquid phases are outlined. Then the main techniques adopted to control industrial crystallizers are described. An overview of the main crystallizer types is also included.

Hardcover 252 pp 2012 ISBN 978-3-527-33173-4

€119.00/€100.00/CAD \$204.00/USD \$185.00



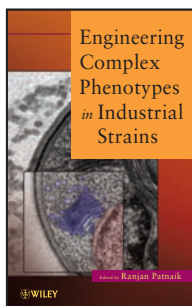
Industrial Biotechnology

Sustainable Growth and Economic Success

Wim Soetaert, Erick J. Vandamme, Editors

Directed at readers with a general interest in the subject, this text introduces biotechnologies as they are employed in a wide range of industries, including chemical production, pharmaceuticals, food and feed, paper and pulp, personal care, energy, and agriculture. Exploring all of the topics regarding white biotechnology submitted at the seventh EU Frame Programme and new industrial production processes highlighted in the Kyoto objectives, this comprehensive overview covers technology, applications, economic potential, and implications for society.

Hardcover 522 pp 2010 ISBN 978-3-527-31442-3 €159.00/€130.00/CAD \$253.00/USD \$230.00



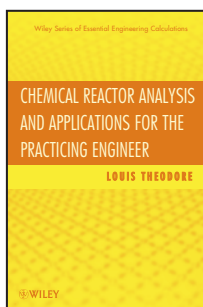
Engineering Complex Phenotypes in Industrial Strains

Ranjan Patnaik

This book details the current and future tools used in the production of bulk chemicals and biofuels developed from renewable biomass using green technologies. It describes in-depth the technology used to unravel the complexity of microbial metabolism in order to produce engineering strains at time scales much faster than

would occur naturally. It also highlights the advantages and drawbacks of all methods and tools used in multiple disciplines for genome engineering of complex phenotypes. Case study examples on applying the tools reinforce the fundamental concepts. A must for research and development biochemists and engineers.

Hardcover 288 pp 2012 ISBN 978-0-470-61075-6 €87.90/£66.95/CAD \$109.95/USD \$99.95



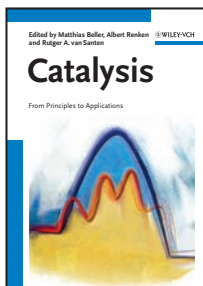
Chemical Reactor Analysis and Applications for the Practicing Engineer

Louis Theodore

Address both the technical and calculational problems in the field of chemical reactor analysis. Get an introduction to the history, process variables, basic operations, kinetic principles, and conversion variables, then explore traditional reactor analysis. Topics include batch, CSTRs, and

tubular flow reactors, plus a comparison of these classes of reactors. Finally, you'll key in on reactor applications that include non-ideal reactors (thermal effects, interpretation of kinetic data, and reactor design) and conclude with other reactor topics, including catalysis, catalytic reactors, other reactions and reactors, and ABET-related topics. An extensive appendix is also included.

Hardcover 592 pp 2012 ISBN 978-0-470-91535-6 €109.00/£83.50/CAD \$138.00/USD \$125.00



Catalysis

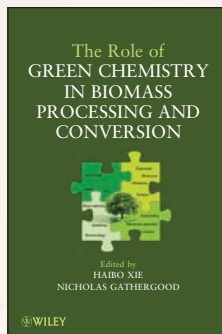
From Principles to Applications

Matthias Beller, Albert Renken, Rutger A. van Santen, Editors

Cover all the essential principles and make use of case studies to illustrate the importance of catalysts in the chemical industry. The authors are all top-flight, with expertise in science, writing, and in teaching. And here they deliver an instructive, future-oriented work that is decidedly application-oriented.

Among the many topics explored: catalysis in perspective, concepts and methods, the chemistry of catalytic reactivity, catalytic conversions, catalyst synthesis and materials, experimental methods, reactor devices and operation, the design of catalytic systems/processes, and future perspectives.

Hardcover 664 pp 2012 ISBN 978-3-527-32349-4 €69.00/£60.00/CAD \$99.00/USD \$90.00



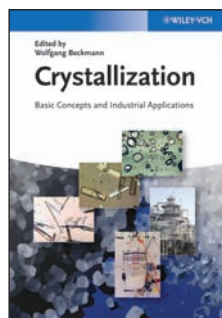
The Role of Green Chemistry in Biomass Processing and Conversion

Haibo Xie, Nicholas Gathergood

Providing readers with a basic knowledge of biopolymers, The Role of Green Chemistry in Biomass and Processing and Conversion offers a score of methods and solutions to integrate green chemistry that will lead to cleaner burning fuels. This up-to-date guide and review on applying green chemistry technologies covers recent advances on homogenous,

heterogeneous catalytic system and biocatalysis for biomass conversion and the assessment of environmental and ecotoxicological effects of bioenergy and ionic liquids platforms, which is especially important to biorefinery manufacturing companies and researchers interested in chemical aspects of "clean technology".

Hardcover 496 pp 2013 ISBN 978-0-470-64410-2 €100.20/£83.50/CAD \$138.00/USD \$125.00

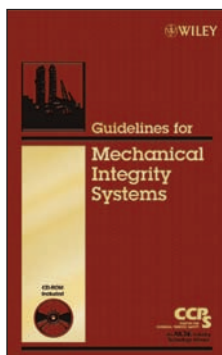


Crystallization: Basic Concepts and Industrial Applications

Wolfgang Beckmann, Editor

Incorporating all the recent developments and applications of crystallization technology, the book gives clear accounts of the underlying principles, details the current research themes and utilizes industrial examples from leading pharmaceutical companies.

Hardcover 360 pp 2013 ISBN 978-3-527-32762-1 €129.00/£105.00/USD \$170.00/CAD \$187.00



Guidelines for Mechanical Integrity Systems

Center for Chemical Process Safety (CCPS)

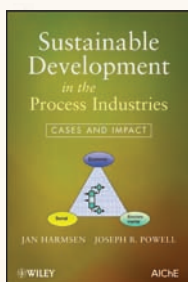
"... an excellent overview of all aspects of mechanical integrity systems... should be very useful for any engineer..."—Journal of Loss Prevention in the Process Industries, January 2007

Improve plant reliability and productivity with the tools you'll find in *Guidelines for Mechanical Integrity Systems*. A fundamental component of successful process safety programs, the task of developing and maintaining a mechanical integrity (MI) program can be daunting. Let CCPS be your guide through the development, implementation, and operation of your facilities' MI programs. With this practical guide you'll gain not only a basic familiarity of MI concepts and best practices, but also comprehensive advice for developing an MI program so that you can ensure that important equipment will be functional and available throughout the life of an operation. As you can imagine, MI programs vary according to industry, regulatory requirements, geography, and plant culture.



Hardcover w/CD-ROM 320 pp 2006 ISBN 978-0-8169-0952-0

€122.00/£94.95/CAD \$171.99/USD \$156.00



Sustainable Development in the Process Industries

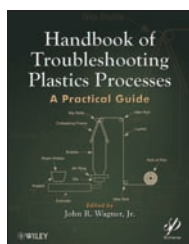
Cases and Impact

Jan Harmsen, Joseph B. Powell, Editors

Sustainable Development in the Process Industries not only explores but also demonstrates practical solutions for using sustainable technologies, focusing on three major points: people, prosperity, and planet. Rather than presenting theories, the text provides real-world

examples and case studies from the petroleum industry to the water processing industry and more. With a collection of international authors, the text is suitable for any chemical engineer or student interested in achieving a more sustainable world.

Hardcover 270 pp 2010 ISBN 978-0-470-18779-1 €77.90/£59.50/CAD \$103.95/USD \$94.95



Handbook of Troubleshooting Plastics Processes

A Practical Guide

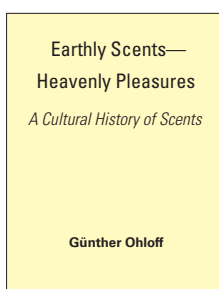
John R. Wagner

"In every chapter, the process is described and the most common problems are discussed along with the root causes and potential technical solutions. Numerous case studies are provided that illustrate the troubleshooting process."—Mark A. Spalding,

the Dow Chemical Company, from the preface

Discover a framework for understanding how to characterize plastic manufacturing processes for use in troubleshooting problems. The 21 chapters of this acclaimed handbook are authored by well-known and experienced engineers, who have specialized knowledge about the processes covered in this practical guide.

Hardcover 504 pp 2012 ISBN 978-0-470-63922-1 €215.00/£166.00/CAD \$274.00/USD \$249.00



Earthy Scents—Heavenly Pleasures

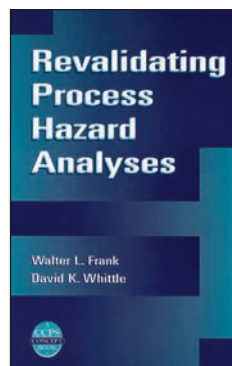
A Cultural History of Scents

Günther Ohloff

In *Earthy Scents*, author and renowned expert on fragrances Günther Ohloff shares the ingredients and recipes used in our world's high cultures for the preparation of bewitching perfumes, ritual incenses, or soothing oils and ointments. From the

ancient traditions of Mesopotamia to the perfumes of the present, from Europe to East Asia, the book explores a fascinating chapter in cultural history. Topic headings include The Magical World of Fragrances in Antiquity, The Scent Trail to the West, Ex Oriente Lux, and From Eau de Chypre to Eau de Cologne, among others.

Hardcover 300 pp 2013 ISBN 978-3-906-39034-5 €49.90/£45.00/CAD \$83.00/USD \$75.00

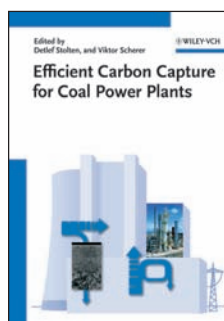


Revalidating Process Hazard Analyses

Walter L. Frank, David K. Whittle

The foundation of any successful process safety program is a current set of process hazard analyses (PHAs) for each of its processes. Revalidating PHAs to keep them up to date and applicable is a must. This book is derived from the experience of many companies in the chemical and hydrocarbon processing industries, and presents demonstrated, concise, and commonsense approaches for a resource-effective revalidation of PHAs. It includes flowcharts, checklists, and worksheets that provide invaluable assistance to the revalidation process.

Hardcover 116 pp 2001 ISBN 978-0-8169-0830-1 €81.90/£62.50/CAD \$109.99/USD \$99.95



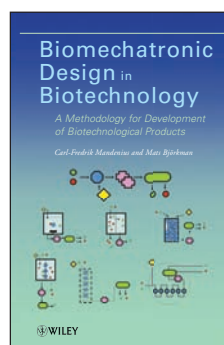
Efficient Carbon Capture for Coal Power Plants

Detlef Stolten, Viktor Scherer, Editors

Uniting top academic and industry researchers in the search for commercial concepts for CCS at power plants, this reference focuses on power plant technology and ways to improve efficiency. It details the three principal ways of capturing the CO₂ produced in power plants—oxyfuel combustion, postcombustion, and precombustion—with the main part concentrating

on the different approaches to removing carbon dioxide. With an eye on safety, the authors explain how the three parts of the CCS chain work—capture, transport, and storage—and how they can be performed safely.

Hardcover 640 pp 2011 ISBN 978-3-527-33002-7 €139.00/£115.00/CAD \$176.00/USD \$160.00



Biomechatronic Design in Biotechnology

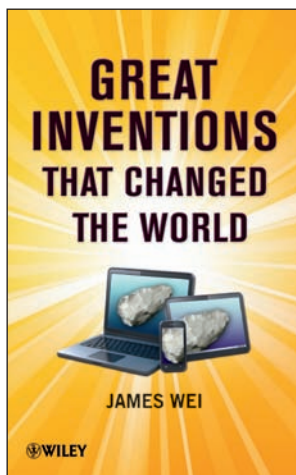
A Methodology for Development of Biotechnological Products

Carl-Fredrik Mandenius, Mats Björkman

Use the product development tools in this book to help create shorter development times and reduce the need for prototype testing and verification. This cutting-edge text presents a unifying approach to the many fields of engineering sciences and biotechnology concerned with the development of protein purification systems, artificial human organs, and stem-cell technology. Illustrating how the book's general engineering design approach can be applied when designing a technical system where biological species or components are integrated, *Biomechatronic Design in Biotechnology* covers the fundamentals, theory, and applications of bio-mechatronic design principles.

Hardcover 304 pp 2011 ISBN 978-0-470-57334-1 €77.90/£60.50/CAD \$98.95/USD \$89.95

Hardcover 304 pp 2011 ISBN 978-0-470-57334-1 €77.90/£60.50/CAD \$98.95/USD \$89.95



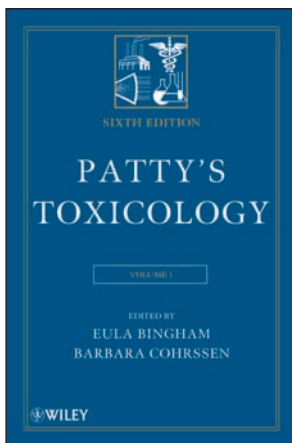
Great Inventions That Changed the World

James Wei

The telephone? The automobile? The PC? What would be your choice for the greatest invention of all time? Written by one of the world's great engineers, this book provides the curious with an explanation of how inventions sprouted from human needs and desires. Chapters discuss the impacts of inventions in our work, personal lives, societies, and the environment. The text also outlines what steps we need to take to ensure the continued arrival of new inventions and how

they should wisely be used. Based on a Princeton University course for a general audience, this book lays out a means for understanding yesterday and today's inventions and paves the way for tomorrow's innovations.

Hardcover 360 pp 2012 ISBN 978-0-470-76817-4 €43.90/€33.50/CAD \$54.95/USD \$49.95



Patty's Toxicology

SIX-VOLUME SET (WITH INDEX)

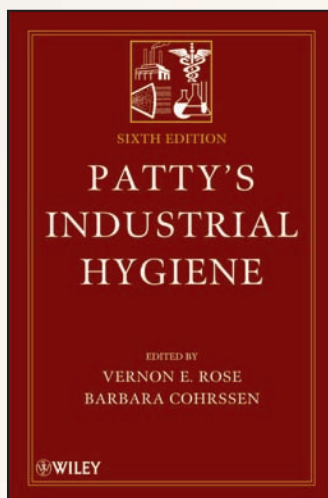
Eula Bingham, Barbara Cohrssen, Editors

"Under various titles through the years, [it] is one of the most comprehensive resource books for health professionals for the purpose of improving quality of life and it represents an invaluable aid in decision making related to public health."—Doody's

Featuring fresh perspectives and all new articles from a host of new authors, *Patty's Toxicology, Sixth Edition*, keeps readers at the forefront of toxicology with its

comprehensive inclusion of the latest data for industrial compounds, from metals to synthetic polymers to physical agents. This edition follows the same improved format found in the previous edition, but contains completely new chapters along with chapters from the last printing that have been updated and revised to include insights into the mechanisms of toxicologic action in the body. New subjects for this edition include nanotechnology, flavorings and the food industry, reactive chemical control to comprehensive chemical policy, metal-working fluids, and pharmaceuticals.

Hardcover 6200 pp 2012 ISBN 978-0-470-41081-3 €2320.00/€1800.00/CAD \$2970.00/USD \$2700.00



Patty's Industrial Hygiene

SIXTH EDITION
FOUR-VOLUME SET



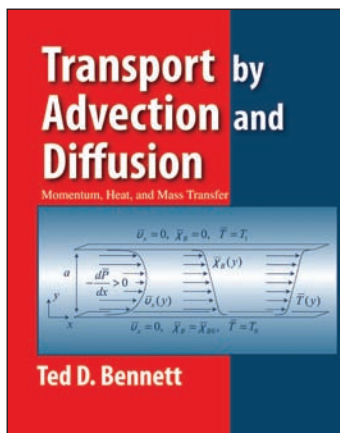
Vernon E. Rose,
Barbara Cohrssen, Editors

"Patty's. Enough said. The name has a golden reputation associated with it."—Harry Elston, editor, *Journal of Chemical Health & Safety*

An updated edition of the cornerstone reference work for chemists, engineers, toxicologists, and occupational safety personnel, the new sixth edition of *Patty's Industrial Hygiene* offers timely coverage on natural disasters, expo-

sures to biological agents, and potential acts of terrorism. With new chapters on homeland security, nanomaterials, chemical toxicants, assessment of contaminants, recognition and valuation of physical agents, ergonomics, bioaerosols, hospital safety, fire safety, and emergency disaster response, the new edition reaffirms Patty's reputation as a work unsurpassed in its field.

Hardcover 2874 pp 2011 ISBN 978-0-470-07488-6 €660.00/€510.00/CAD \$902.00/USD \$820.00



Transport by Advection and Diffusion

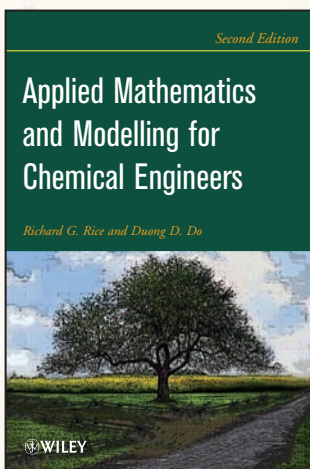


Ted Bennett

Bennett's *Transport by Advection and Diffusion* gives readers the analytical and numerical tools they need to aid problem solving in every topic area of the text. A sampling of those 37 topic areas includes transport with source terms, specification of transport problems, transient one-dimensional diffusion, lu-

brication theory, MacCormack integration, and many, many more. In fact, this text is superior in its ability to help readers develop match skills that will help them grasp the concepts necessary for success in research and education. It also improves upon an integrated approach to teaching transport phenomena and widens this to include topics such as transport in compressible flows and in open channel flows.

Hardcover 620 pp 2012 ISBN 978-0-470-63148-5 €65.90/€49.99/CAD \$180.95/USD \$190.95



Applied Mathematics and Modeling For Chemical Engineers

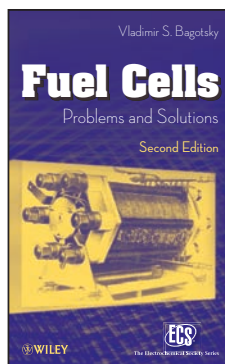
SECOND EDITION

Richard G. Rice, Duong D. Do

This second edition of the original go-to reference combines the classical analysis and modern applications of applied mathematics for chemical engineers. The book introduces traditional techniques for solving ordinary differential equations (ODEs), adding new material on approximate solution methods such as perturbation techniques and elementary numerical

solutions. It also includes analytical methods to deal with important classes of finite-difference equations. The last half discusses numerical solution techniques and partial differential equations (PDEs). The reader will then be equipped to apply mathematics in the formulation of problems in chemical engineering. Like the first edition, there are many examples provided as homework and worked examples.

Hardcover 400 pp 2012 ISBN 978-1-118-02472-0 £109.00/£83.50/CAD \$138.00/USD \$125.00



Fuel Cells

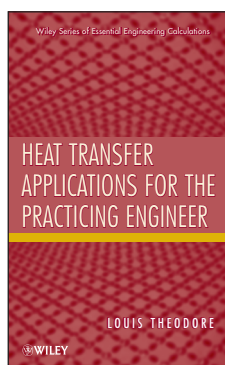
Problems and Solutions

SECOND EDITION

Vladimir S. Bagotsky

Extract the most important information on fuel cells, analyze it, and assess its scientific value and technical importance. You're provided a full yet concise description of all the important aspects of fuel cells, from major types to their historical development to inherent scientific and engineering problems and their commercialization and applications. Stay up to date on structural and wetting properties of porous fuel cell components and on fuel cells with mixed reactant supply, with chapters new to this edition.

Hardcover 406 pp 2012 ISBN 978-1-118-08756-5 €87.90/€66.95/CAD \$109.95/USD \$99.95



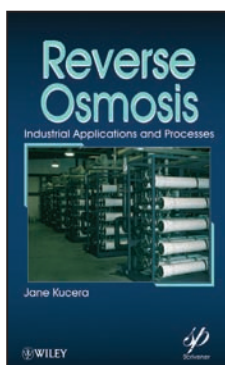
Heat Transfer Applications for the Practicing Engineer

Louis Theodore

Gain insight into steady-state heat conduction, unsteady-state heat conduction, forced convection, free convection, radiation, boiling and condensation, and cryogenics. In addition, you'll review heat transfer equipment design procedures and applications as well as a detailed treatment of the various types of heat exchangers; the impact of entropy calculations on exchanger design; operation,

maintenance, and inspection (OM&I); refractory and insulation effects; and more.

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Reverse Osmosis

Industrial Applications and Processes

Jane Kucera

Reverse Osmosis: Industrial Applications and Processes provides comprehensive coverage of the technology, covering the processes and equipment necessary to design, operate, and troubleshoot reverse osmosis systems. Written in clear, concise language, this book provides equipment manufacturers and chemical and process engineers with the immediate ability to implement this emergent

"green" technology.

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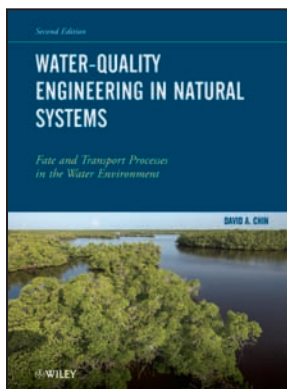


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Water-Quality Engineering in Natural Systems

Fate and Transport Processes in the Water Environment

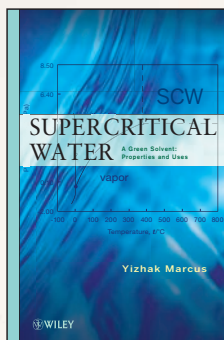
SECOND EDITION

David A. Chin

Now in its second edition, this acclaimed text sets forth core concepts and principles that govern the fate and transport of contaminants in water, giving environmental and civil engineers

and students a full set of tools to design systems that effectively control and remediate the quality of natural waters. Readers will find coverage of all major classes of water bodies. Moreover, the author discusses the terrestrial fate and transport of contaminants in watersheds, underscoring the link between terrestrial loadings and water pollution. With end-of-chapter problems and plenty of worked examples, *Water-Quality Engineering in Natural Systems* enables readers to not only understand what happens to contaminants in water, but also design systems to protect people from toxic pollutants.

Hardcover 472 pp 2012 ISBN 978-1-118-07860-0 €109.00/£83.50/CAD \$138.00/USD \$125.00



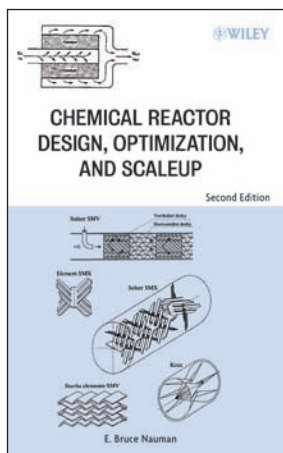
Supercritical Water

Yizhak Marcus

Drawing from thousands of original research articles, this book reviews and summarizes what is currently known about the properties and uses of supercritical water. In particular, it focuses on new and emerging applications of supercritical water as a green solvent, including the catalytic conversion of biomass into fuels and the oxidation of hazardous materials. Following this introduction, the book describes the bulk macroscopic

properties of supercritical water, using equations of state to explain temperature-pressure-density relationships. It examines supercritical water's molecular properties, explores the solubilities of gases, organic substances, salts, and ions in supercritical water in terms of the relevant phase equilibria, and details the practical uses of supercritical water at both small scales and full industrial scales.

Hardcover 218 pp 2012 ISBN 978-0-470-88947-3 €95.90/£73.50/CAD \$121.00/USD \$110.00



Chemical Reactor Design, Optimization, and Scaleup

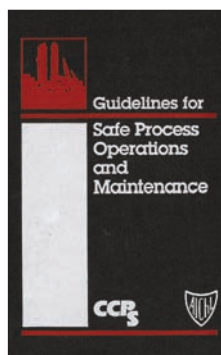
SECOND EDITION

E. Bruce Nauman

This is the authoritative source-book on chemical reactors. *Chemical Reactor Design, Optimization, and Scaleup* consolidates the latest information on current optimization and scaleup methodologies, numerical methods, and biochemical and polymer reactions. It provides the comprehensive tools and information to help readers design and specify chemical reactors confidently, with state-of-the-art skills.

This book covers the fundamentals and principles of chemical reactor design, along with advanced topics and applications. It presents techniques for dealing with varying physical properties in reactors of all types and purposes. And it includes a completely new chapter on meso-, micro-, and nano-scale reactors that addresses such topics as axial diffusion in micro-scale reactors and self-assembly of nano-scale structures.

Hardcover 608 pp 2008 ISBN 978-0-470-10525-2 €122.00/£93.95/CAD \$165.00/USD \$150.00

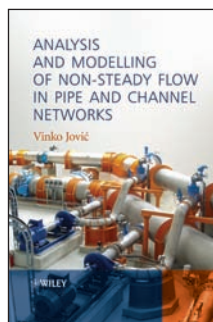


Guidelines for Safe Process Operations and Maintenance

Center for Chemical Process Safety (CCPS)

This book offers managers "how-to" information on process safety management program execution in the operations and maintenance departments, recommending technical and administrative process safety activities for the entire life cycle of the plant.

Hardcover 352 pp 1995 ISBN 978-0-8169-0627-7 €95.90/£73.50/CAD \$128.99/USD \$117.00



Analysis and Modelling of Non-Steady Flow in Pipe and Channel Networks

Vinko Jovic

This publication presents the theory and practice of modelling different flows in hydraulic network. The author presents his experience over the last few decades of solving problems that occur in the course of the design and construction of hydroenergy plants, water-supply and other systems and discusses new methods of solving hydraulic problems that

have evolved, primarily due to the development of numerical methods. Includes a website hosting the author's software package, Simpip, which is used for solving non-steady pipe flow using the finite element method.

Hardcover 552 pp 2013 ISBN 978-1-118-53214-0 €129.00/£100.00/CAD \$182.00/USD \$165.00





Plantwide Control

Recent Developments and Applications

Gade Pandu Rangaiah, Vinay Kariwala, Editors

Learn about state-of-the-art techniques for the design and evaluation of PWC systems. Various applications taken from chemical, petrochemical, biofuels, and mineral processing industries are used to illustrate the use of these approaches. Coverage includes disturbances and measurement system design, control degrees of freedom analysis for plant-wide control

of industrial processes, computation of CDOF using flowsheet-oriented method, brute-force optimization approach for CV selection, and null space method.

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Modern Drying Technology

FIVE-VOLUME SET

Evangelos Tsotsas, Arun S. Mujumdar, Editors

Drying is very challenging in both theory (mathematical modeling) and in experimentation because of the multiphase and multiscale nature of the process. These guides—the first four of a five-volume set—afford readers a comprehensive look at all of the important aspects of modern drying technology that

guarantee advanced results. Each volume is available for separate purchase. You can also order the entire set on a standing-order basis: we'll ship these first four volumes immediately; the fifth volume—*Process Intensification*—will ship as soon as it becomes available.

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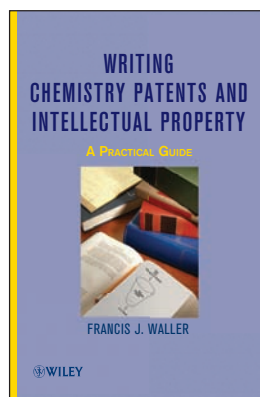
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Volume 5: Process Intensification

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Writing Chemistry Patents and Intellectual Property

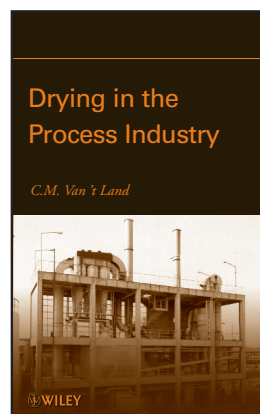
A Practical Guide

Francis J. Waller

Based on a short course the author gives for the American Chemical Society, this book offers the necessary insights and strategies for how to write a patent so it is not rejected by the United States Patent and Trade Office (USPTO) and does not have invalid claims. With examples from issued patents, the book guides inventors through the writing process, helping

them understand the basic steps for drafting and prosecuting a patent application. You will come to understand the patent examiner's rejection process. You'll learn how a comprehensive literature search should be structured. And you'll be taught how to write the specification so one skilled in the art can duplicate your results without undue experimentation.

Hardcover 256 pp 2011 ISBN 978-0-470-49740-1 €69.90/£53.50/CAD \$107.95/USD \$79.95



Drying in the Process Industry

C. M. Van 't Land

Confidently choose industrial drying equipment that increases profits, runs efficiently, and optimally suits your needs. You'll investigate the current state of the art of today's industrial drying practices, examine the factors influencing drying's high, and get a summary of the key elements for keeping drying operations under budget and performing at peak capacity safely while respecting the environment.

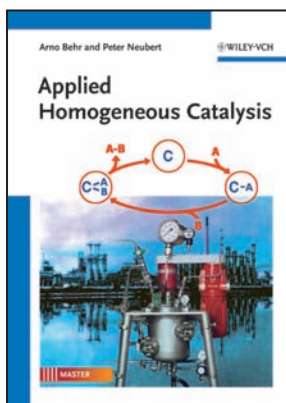
Extensive coverage of dryer basics, as well as essential procedures for the selection of industrial dryers, provides criteria for generating scalable specifications that greatly assist buying decisions.

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Arno Behr,
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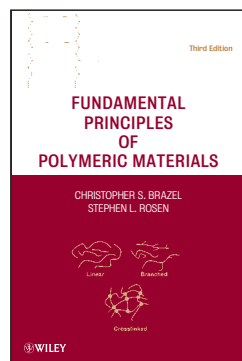
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Fundamental Principles of Polymeric Materials

THIRD EDITION

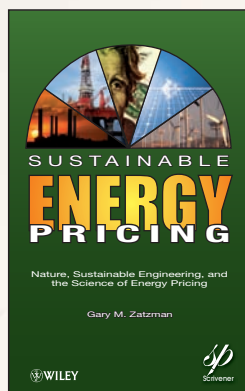
Christopher S. Brazel,
Stephen L. Rosen

With its balanced presentation of polymer chemistry, physics, and engineering applications, the third edition of this classic text continues to instill readers with a solid understanding of the core

concepts underlying polymeric materials. Readers familiar with the previous edition of this text will find that the organization and style have been updated with new material to help them grasp key concepts and discover the latest science, techniques, and applications. The text also features new techniques for polymer analysis, processing, and microencapsulation as well as emerging techniques such as atom transfer radical polymerization. Problems at the end of each chapter—including many that are new to this edition—test the reader's grasp of core concepts.

Hardcover 432 pp 2012 ISBN 978-0-470-50542-7

€87.90/£66.95/CAD \$109.95/USD \$99.95



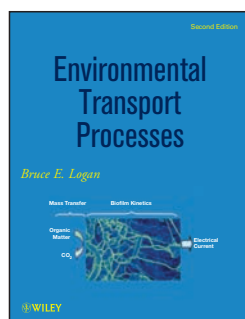
Sustainable Energy Pricing

Nature, Sustainable Engineering, and the Science of Energy Pricing

Gary M. Zatzman

The petroleum sector is possibly the largest and most dominant economic sector in the globalized economy. However, for reasons explored in this book, though none of the existing economic development models have fit this sector in the past and apply even less today, no satisfactory alternative has presented itself. This book highlights the important reasons why current models fail to predict energy pricing with reasonable accuracy and ventures into environmental and other problems with oil and gas production and associated economic decisions made in developed as well as developing economies.

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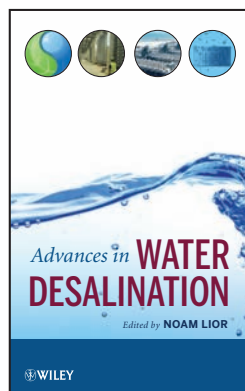
Environmental Transport Processes

SECOND EDITION

Bruce E. Logan

Developed as a reference for transport phenomena courses, this completely revised second edition of *Environmental Transport Processes* delivers a reader-friendly treatment of environmental systems. The text features a unique combination of material from different fields (mass transport, kinetics, wastewater treatment, unit processes) and includes pertinent literature not available in any other text. Rich with examples and sample problems, this updated edition addresses new and emerging topics, including non-aqueous phase liquids (NAPLs), the subject of aggregates, and biofilm kinetic models merged with mass transport concepts.

Hardcover 482 pp 2012 ISBN 978-0-470-61959-9 €95.90/£73.50/CAD \$121.00/USD \$110.00



Advances in Water Desalination

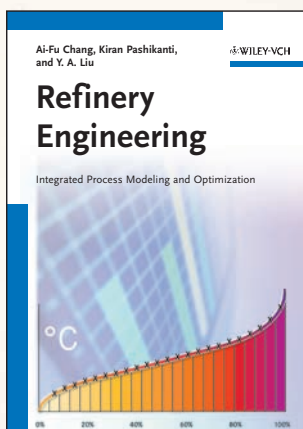
Noam Lior, Editor

As one of the most promising technologies used to supply water to populations in arid regions, water desalination is a dynamically growing field. This text surveys the most promising technologies used to supply water to populations in arid regions, covering desalination science, technology, economics, energy considerations, environmental impact, and more. A truly international group of authors from four continents contribute their expert views, each providing an in-depth look at a specific aspect of the technology. Essential for scientists and other professionals involved in research, engineering, and

training programs around the globe.

Hardcover 712 pp 2013 ISBN 978-0-470-05459-8 €152.00/£117.00/CAD \$193.00/USD \$175.00





Refinery Engineering

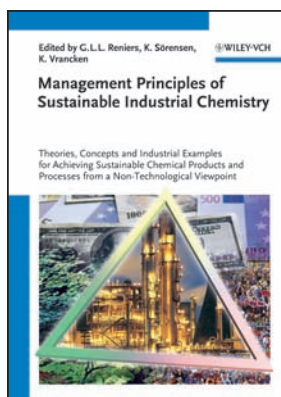
Integrated Process Modeling and Optimization

Ai-Fu Chang, Kiran Pashikanti, Y. A. Liu

One of the strengths of the book is that it doesn't stop with theory or even case study examples. It covers very practical problems: how to work with real data, how to construct the right level of detail for the problem and the data available, and how to tune the model to actual plant data. Individuals who want to contribute to the develop-

ment of refinery process modeling or explore new directions will find the extensive review of existing work valuable. This book will also be valuable to industrial practitioners and to academic chemical engineers as it exposes them to refinery process modeling and optimization and empowers them to solve realistic problems.

Paperback 522 pp 2012 ISBN 978-3-527-33357-8 €99.00/£85.00/CAD \$132.00/USD \$120.00



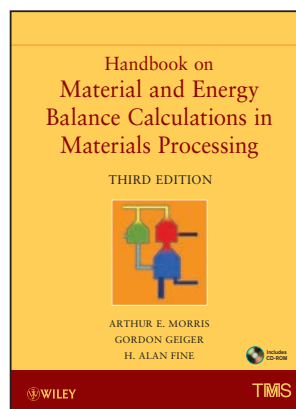
Management Principles of Sustainable Industrial Chemistry

Genserik L. L. Reniers, Kenneth Sorensen, Karl Vrancken, Editors

Approaching sustainability from the perspectives of engineering and multiple scientific disciplines, this book incorporates the concepts of intergenerational equity and ecological capabilities, while promoting scientific rigor for the analysis of sustainability and the use of appropriate metrics to determine the comparative merits of alternatives.

The chapters are organized around the key non-technological themes of sustainable industrial chemistry and provide an overview of the managerial principles to enhance sustainability in the chemicals sector. The book strives to provide an intellectual forum and stimulus for defining the roles chemical engineers can play in achieving sustainable development. Suitable for industry and graduate education, this is the one-stop guide to greener, cleaner, economically viable and more efficient chemical industries.

Hardcover 280 pages 2013 ISBN 978-3-527-33099-7 €79.00/£65.00/CAD \$138.00/USD \$125.00



Handbook on Material and Energy Balance Calculations in Materials Processing

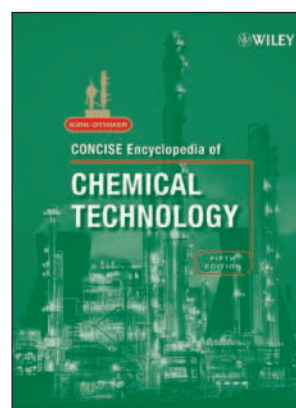
THIRD EDITION

Arthur E. Morris, Gordon H. Geiger, H. Alan Fine

“... this completely revised third edition provides a clear, comprehensive treatment of the use of mass balance and stoichiometry techniques, and the application of the First Law of Thermodynamics to the production and processing of mineral, metallic, and ceramic materials. The text comes with a CD containing an extensive thermodynamic database, specially developed software to carry out more complex calculations, and a bonus set of flowsheeting notes by Dr. Eric Grimsey of Curtin University, Australia.”—TMS News



Hardcover w/CD-ROM 640 pp 2011 ISBN 978-1-118-06565-5
€129.00/£100.00/CAD \$164.95/USD \$149.95



Kirk-Othmer Concise Encyclopedia of Chemical Technology

FIFTH EDITION
TWO-VOLUME SET

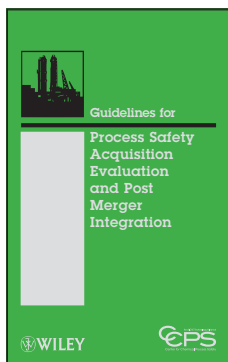
Kirk-Othmer

“Easily accessible format, and offers convenient, key information that readers will find broadly useful.”
— CHOICE

“This is the kind of book that every library should have. Professional chemical engineers and scientists in general will also find this a valuable addition to their library.”—American Reference Books Annual

Published in 27 volumes, the *Kirk-Othmer Encyclopedia of Chemical Technology* is the definitive reference for working professionals and students. And now, you can have all of the critical information conveyed in those 27 volumes at your fingertips, contained in an affordable two-volume resource. Derived from the full fifth edition of the *Kirk-Othmer Encyclopedia of Chemical Technology*, this compact desk reference includes some 750 topics originally contained in the 27-volume set. Each original article was expertly chosen to ensure the relevancy of the end result. This distillation, skillfully prepared to retain the most pertinent material of the original, is a complete and self-contained encyclopedia, designed to serve as a ready guide for anyone seeking answers to questions on most any aspect of chemical technology.

Hardcover 2762 pp 2007 ISBN 978-0-470-04748-4 €460.00/£356.00/CAD \$626.99/USD \$570.00



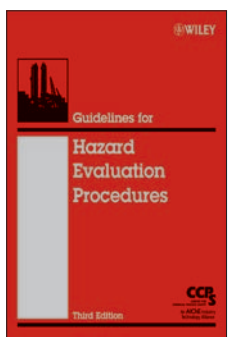
Guidelines for Process Safety Acquisition Evaluation and Post Merger Integration

Center for Chemical Process Safety (CCPS)

A compilation of industry best practices from both technical and financial perspectives, this book is a single, one-stop reference that addresses acquisitions and merger-integration issues related to process safety. Presently, there are limited references on how to handle acquisitions—available in several different CCPS publications—and almost no coverage in

several different CCPS publications and almost no coverage of the post-merger integration issue; so, this reference fills a notable gap in the coverage.

Hardcover 314 pp 2010 ISBN 978-0-470-25148-5
£87.90/£66.95/CAD \$116.00/USD \$105.00



Guidelines for Hazard Evaluation Procedures

THIRD EDITION

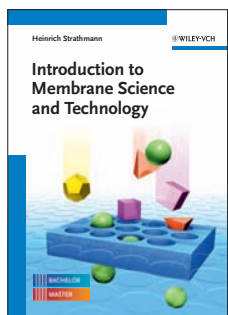
Center for Chemical Process Safety (CCPS)

Guidelines for Hazard Evaluation

Procedures keeps process engineers updated on the effective methodologies that process safety demands. This third edition includes new information on layer of protection analysis; security vulnerability analysis; human factors; inherently safer technology reviews; mechanical integrity;

examples that speak to current process technology, management practices, and to contexts outside of chemical manufacturing and petroleum; and electronic spreadsheet tools to make the user's job easier.

Hardcover 576 pp 2008 ISBN 978-0-471-97815-2 £119.00/£90.50/CAD \$149.99/USD \$144.00



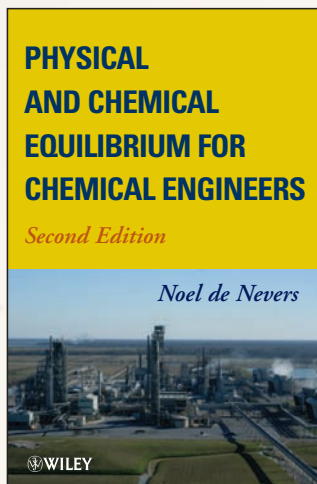
Introduction to Membrane Science and Technology

Heinrich Strathmann

Written by a dedicated lecturer and leading membrane scientist who has worked both in academia and industry, this advanced textbook provides an impressive overview of all aspects of membranes and their applications. A significant feature of the book is the treatment of more recently developed membranes and their applications in energy conversion, biomedical components, controlled release devices,

and environmental engineering with an indication of the present and future commercial impact. Together with numerous industrial case studies, practical examples, and Q&As, it provides an excellent and comprehensive introduction to the topic.

Hardcover 544 pp 2011 ISBN 978-3-527-32451-4 £75.00/£65.00/CAD \$116.00/USD \$105.00



Physical and Chemical Equilibrium for Chemical Engineers

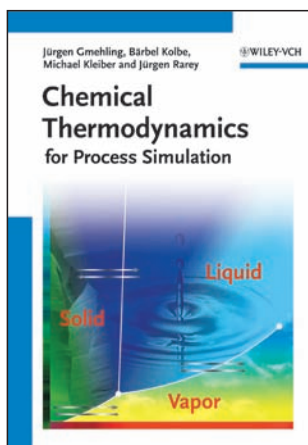
SECOND EDITION

Noel de Nevers

Use the simplest mathematics along with numerous numerical examples to accurately and rigorously cover physical and chemical equilibrium in depth and detail. Numerous updates have been made, including changes in naming and notation (this edition uses the more popular Gibbs energy and partial molar properties); changes in symbols (the first edition used

the Lewis-Randall fugacity rule and the popular symbol for the same quantity, this edition only uses the popular notation); and the addition of new problems to the text.

Hardcover 384 pp 2012 ISBN 978-0-470-92710-6 £112.00/£86.95/CAD \$143.00/USD \$130.00



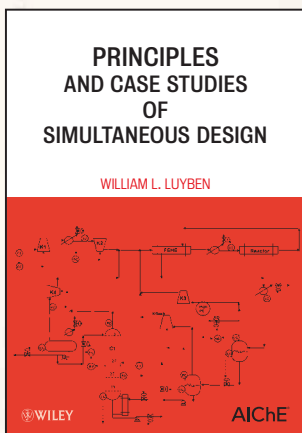
Chemical Thermodynamics for Process Simulation

Jürgen Gmehling, Bärbel Kolbe, Michael Kleiber, Jürgen Rarey

Apply thermodynamics to real-world process engineering problems, and get an explanation of the thermodynamics behind simulations from the view of everyone from academic and industrial authors to users of simulation programs. Numerous solved examples help simplify the understanding of the often complex calculation procedures, while illustrating their advantages and

disadvantages. Estimation methods for thermophysical properties and phase equilibria and thermodynamics of alternative separation processes (distillation, extraction, membrane, physical and chemical absorption, adsorption, extraction with supercritical fluids, crystallization, reactive distillation) are included.

Hardcover 760 pp 2012 ISBN 978-3-527-31277-1 £99.00/£85.00/CAD \$149.00/USD \$135.00



Principles and Case Studies of Simultaneous Design

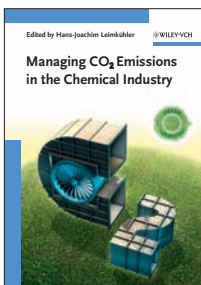
William L. Luyben



A comprehensive guide that provides a significant number of detailed economic design examples of typically complex industrial processes, *Principles and Case Studies of Simultaneous Design* presents general process design principles in a concise, readable form that can be easily comprehended by students and engineers when developing effective flow sheet and

control structures. The ten detailed case studies presented illustrate an in-depth and quantitative way the application of these general principles, along with detailed flow sheets and Aspen Plus files of dynamic simulations to enhance learning for readers at all levels.

Hardcover 344 pp 2011 ISBN 978-0-470-92708-3 €132.00/£100.50/CAD \$164.95/USD \$149.95



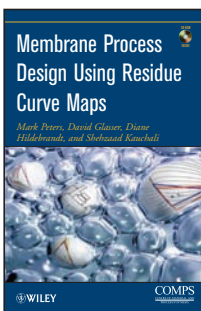
Managing CO2 Emissions in the Chemical Industry

Hans-Joachim Leimkühler, Editor

This unrivaled handbook addresses both the technical and administrative aspects of CO2 emissions, with special consideration given to the chemical and petrochemical industries. It also covers energy efficient design, cultural aspects, and future developments, answering such questions along the way as: How can I

measure and demonstrate the CO2 emissions linked to my production? How can I benefit from CO2 neutral investments using the UNFCCC frame? and How can I reduce or avoid CO2 emissions by technical measures and new processes?

Hardcover 480 pp 2010 ISBN 978-3-527-32659-4 €139.00/£115.00/CAD \$215.00/USD \$195.00



Membrane Process Design Using Residue Curve Maps

Mark Peters, David Glasser, Diane Hildebrandt, Shehzaad Kauchali

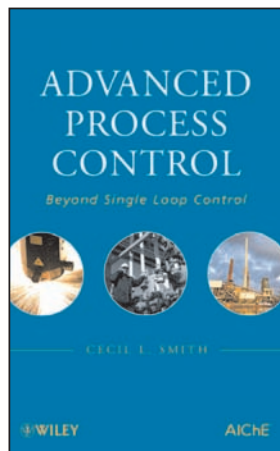
Delve into a novel method of design and synthesis for membrane separation. The method, which uses a graphical technique, allows one to calculate and visualize the change in composition of the retentate (non-permeate) phase. One of the strengths of this approach is that it is exactly analogous to the method

of Residue Curve Maps that has proven so successful in distillation system synthesis and design. Includes a CD that allows users to input his/her own variable into examples and calculations.



Hardcover w/CD-ROM 264 pp 2011 ISBN 978-0-470-52431-2

€119.00/£90.50/CAD \$162.00/USD \$135.00



Advanced Process Control

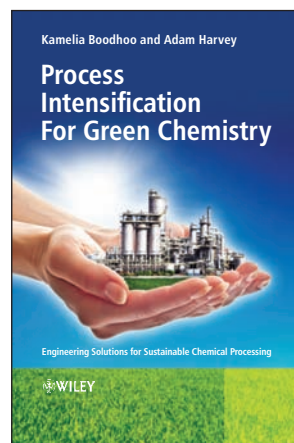
Beyond Single Loop Control

Cecil Smith

Learn how you can move beyond basic control configurations, such as simple feedback or cascade, to improve control performance or, specifically, to reduce the variance of a target. This book fills the gap between discussions of basic control configurations and model predictive control (MPC), emphasizing the economic aspects of applying various advanced control technologies along the way. It explains the use of constraint control, provides a splendid

overview of dead-time compensation and MPC itself, and describes the effects of the interaction of multiple control loops.

Hardcover 450 pp 2010 ISBN 978-0-470-38197-7 €87.90/£66.95/CAD \$116.00/USD \$105.00



Process Intensification For Green Chemistry

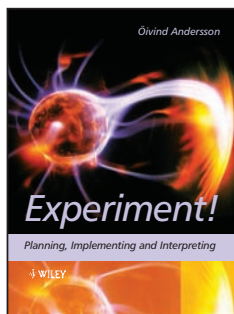
Engineering Solutions for Sustainable Chemical Processing

Kamelia Boodhoo, Adam Harvey, Editors

The successful implementation of greener chemical processes relies not only on the development of more efficient catalysts for synthetic chemistry, but also, and as importantly, on the development of reactor and separation technologies that can deliver enhanced processing performance in a safe, cost-effective, and energy-efficient

manner. Process intensification has emerged as a promising method for effectively tackling the challenges of significant process enhancement with the potential of diminishing environmental impact. Following an introduction to process intensification and the principles of green chemistry, this book presents a number of intensified technologies and includes case studies to illustrate their application to green chemical processes.

Hardcover 432 pp 2013 ISBN 978-0-470-97267-0 €129.00/£100.00/CAD \$164.95/USD \$149.95



Experiment!

Planning, Implementing and Interpreting

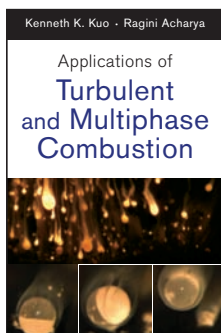
Oivind Andersson

The art of experimentation is often learnt by doing, so an intuitive understanding of the experimental method usually evolves gradually through years of trial and error. The aim of this book is to speed up the journey to becoming a proficient experimenter. Organized in two parts,

this unique work begins by providing a general introduction to the scientific approach to experimentation. It then describes the processes and tools required, including the relevant statistical and experimental methods. Towards the end of the book a methodology is presented that leads the reader through the three phases of an experiment: planning, data collection, and analysis and synthesis.

Hardcover 288 pp 2012 ISBN 978-0-470-68826-7 €119.00/£90.00/CAD \$160.00/USD \$145.00

Paperback 288 pp 2012 ISBN 978-0-470-68825-0 €38.90/£29.95/CAD \$54.95/USD \$49.95

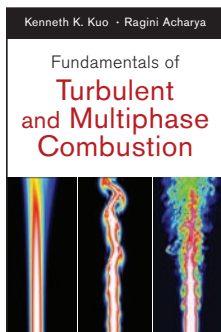


Applications of Turbulent and Multiphase Combustion

Kenneth Kuan-yun Kuo, Ragini Acharya

Focus on applications, with coverage not available elsewhere, including solid propellants, burning behavior, and chemical boundary layer flows. Get a multiphase systems approach beginning with more common topics and moving to higher level applications. Large numbers of examples and problems, and a solutions manual, are provided.

Hardcover 600 pp 2012 ISBN 978-1-118-12756-8 €155.00/£120.00/CAD \$193.00/USD \$175.00

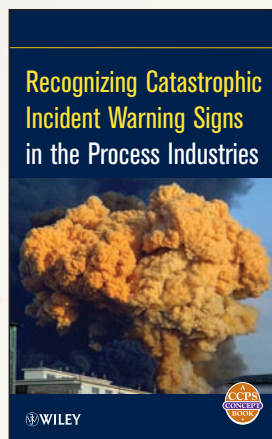


Fundamentals of Turbulent and Multiphase Combustion

Kenneth Kuan-yun Kuo, Ragini Acharya

Enhance your knowledge of advanced topics of combustion and flame. Make use of a multiphase systems approach beginning with more common topics and moving to higher level applications such as reacting boundary layer flows, ignition of homogeneous mixtures, flame extinction phenomena, and detonation processes in condensed phase materials.

Hardcover 912 pp 2012 ISBN 978-0-470-22622-3 €129.00/£100.00/CAD \$165.00/USD \$150.00



Recognizing Catastrophic Incident Warning Signs in the Process Industries

Center for Chemical Process Safety (CCPS)

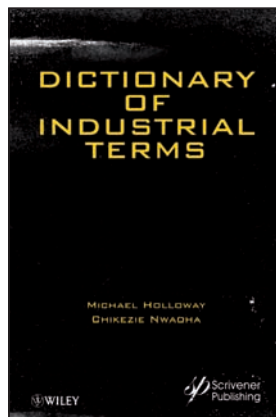
Recognize potential process incidents before they happen and explore how to design and implement effective process safety management (PSM) systems. Going beyond other books on the market, this one provides access to unique guidance on how to recognize and respond to warning signs before it's too late. Providing guidance on characterizing and responding to the warning signs that

anticipate process incidents, it is an invaluable tool for evaluating your processes and systems. Contains practical tips, informative photos, and descriptions of example process incident warning signs such as instrumentation warnings or alarms, past operating history and incidents, and observable problems such as corrosion or unusual odors.



Hardcover w/CD-ROM 264 pp 2012 ISBN 978-0-470-76774-0

€109.00/£83.50/CAD \$138.00/USD \$125.00



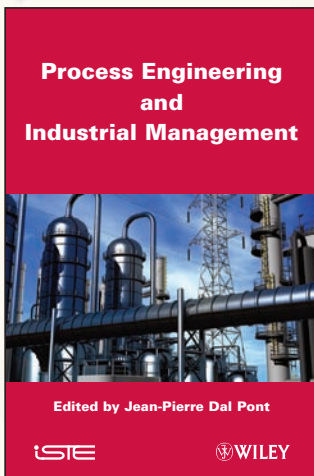
Dictionary of Industrial Terms

Michael Holloway, Chikezie Nwaoha

Now it's easier to be certain that everyone's on the same page. Welcome to the most comprehensive dictionary of maintenance and reliability terms ever compiled, dedicated to process, manufacturing, and every other major area of engineering used in industry. More than 15,000 entries—contributed by experts from industry and academia—are alphabetically arranged and include special features

that encourage usage and understanding. These are supplemented by hundreds of figures and tables that clearly demonstrate the principles and concepts behind process control, instrumentation, reliability, machinery, asset management, lubrication, corrosion, and much more.

Hardcover 680 pp 2013 ISBN 978-1-118-34457-6 €215.00/£166.00/CAD \$274.00/USD \$249.00



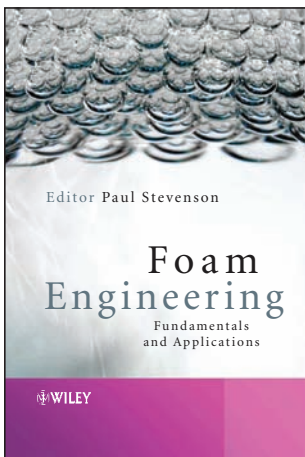
Process Engineering and Industrial Management

J. Dal Pont, Editor

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. But a lot has changed since then and, today, industrial enterprises have to reconsider outmoded process engineering strategies, taking into account environmental constraints, social requirements, and resource depletion. 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 outlines the latest in process engineering, relaying proven approaches to the management of technology, projects, and manufacturing.

Hardcover 2012 ISBN 978-1-84821-326-5 €169.00/£130.00/CAD \$215.00/USD \$195.00



Foam Engineering

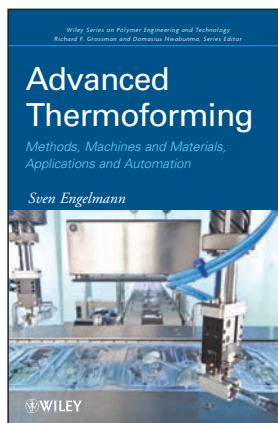
Fundamentals and Applications

Paul Stevenson, Editor

Your much-needed update of foam science research. Divided into two sections, with the physical nature or behavior of gas-liquid foam described first, followed by the process or product applications of foam. The theory of foam science and industrial applications are linked, and a summary of the state of the art of gas-liquid foam knowledge is included. Other topics include foam morphology in two—and three—dimensions, foam

drainage, changes in bubble size by coalescence and ripening, foam rheology, pneumatic and particle-stabilised foams, non-aqueous foams and suprafroths, froth phase phenomena in mineral flotation, and oil sand processing.

Hardcover 548 pp 2012 ISBN 978-0-470-66080-5 €142.00/£110.00/CAD \$193.00/USD \$175.00



Advanced Thermoforming

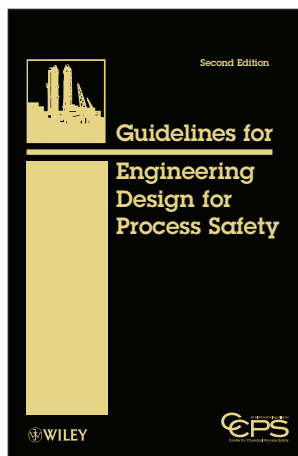
Methods, Machines and Materials, Applications and Automation

Sven Engelmann

Take advantage of an overview and insight into the advanced technology of thermoforming by learning about the different processes and applications. Explore the possibilities of thermoforming from forming, filling, and sealing processes to using thermoforming technology for cost-saving purposes and maxi-

mum efficiency. Coverage addresses the simulation of formed parts as well as applications of technical parts and packaging. You'll be guided through the path of development, design, machine and mold technology, and production, as well as the latest innovations, from thermoformed bottles to fully automated assembly lines.

Hardcover 352 pp 2012 ISBN 978-0-470-49920-7 €129.00/£100.00/CAD \$164.95/USD \$149.95



Guidelines for Engineering Design for Process Safety

SECOND EDITION

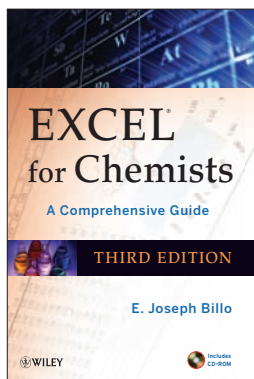
Center for Chemical Process Safety (CCPS)

This updated version of one of the most popular and widely used CCPS books provides plant design engineers, facility operators, and safety professionals with essential information on selected topics of interest. The book focuses on process safety issues in the design of chemical, petrochemical, and hydrocarbon processing facilities

and discusses how to select designs that can prevent or mitigate the release of flammable or toxic materials, which could lead to a fire, explosion, or environmental damage. Key areas in this new edition include inherently safer design (specifically concepts for design of inherently safer unit operations) and safety instrumented systems and layers of protection analysis. This book also provides an extensive bibliography with related publications and topic-specific information, as well as key information on failure modes and potential design solutions.

Hardcover 440 pp 2012 ISBN 978-0-470-76772-6 €109.00/£83.50/ CAD \$138.00/USD \$125.00





Excel® for Chemists

A Comprehensive Guide

THIRD EDITION

E. Joseph Billo

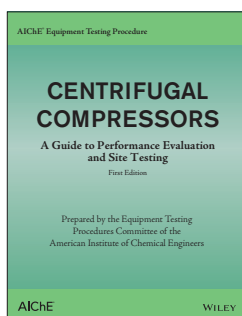
"Excel for Chemists should be part of any academic library offering courses and programs in chemistry. There is no other book on the market that deals so thoroughly with the application of Excel for analyzing chemical data."—Choice

Chemists across all disciplines use Excel to record data in tabular form, but few have learned to take full advantage

of the program. Featuring clear, step-by-step instruction, *Excel for Chemists* shows how to use the scientific calculating power of Excel to perform a variety of chemical, biochemical, physical, engineering, biological, and medicinal calculations. Including a CD-ROM for both Mac and Windows containing many useful spreadsheet templates, macros, and other tools.



Paperback w/CD-ROM 760 pp 2011 ISBN 978-0-470-38123-6
€53.90/£40.50/CAD \$65.95/USD \$59.95



AIChE Equipment Testing Procedure—Centrifugal Compressors

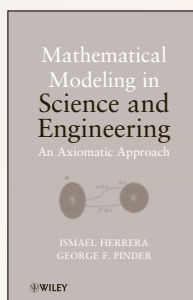
A Guide to Performance Evaluation and Site Testing

AIChE

With its engineer-tested procedures and thorough explanations, *Centrifugal Compressors* is an essential text for anyone engaged in implementing new technology in equipment design, identify-

ing process problems, and optimizing equipment performance. This condensed book presents a step by step approach to preparing for, planning, executing, and analyzing tests of centrifugal compressors, with an emphasis on methods that can be conducted on-site and with an acknowledgement of the strengths and limitations of these methods. The book opens with an extensive and detailed section offering definitions of relevant terms, which are explained not only in words, but also with the equations used to determine their values. Other discussion topics include: Selection of instrumentation and identification of elements to be measured; strategies for data collection and evaluation; recommendations for when to schedule tests; pre-test, in-test, and post-test considerations (equipment, safety, process, environmental); and computation and interpretation of results, including guidelines for field modifications and analysis of results.

Paperback 64 pp 2013 ISBN 978-1-118-62781-5 €34.90/£26.95/CAD \$43.95/USD \$39.95



Mathematical Modeling in Science and Engineering

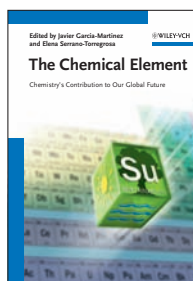
An Axiomatic Approach

Ismael Herrera, George F. Pinder

Learn mathematical and computational modeling (MCM) using the axiomatic approach, which permits incorporating in a single model systems that occur in many different branches of science and engineering. The authors provide a simple and fast manner of

getting acquainted with the most important mathematical models of engineering and science, and the axiomatic approach allows you to formulate models of previously unknown systems. Apply the systematic method for constructing mathematical models to any macroscopic physical system.

Hardcover 264 pp 2012 ISBN 978-1-118-08757-2 €69.90/£53.50/CAD \$87.95/USD \$79.95



The Chemical Element

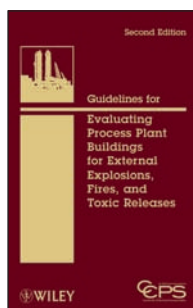
Chemistry's Contribution to Our Global Future

Javier Garcia-Martinez, Elena Serrano-Torregrosa, Editors

The United Nations declared 2011 to be the International Year of Chemistry, and this book helps celebrate that declaration with the contributions of prominent scientists who examine nine areas critical to human survival from

a chemistry point of view. These areas include energy, climate, food, water, poverty, education, and health. Each contributor is an opinion leader or a high-ranking decision maker in a national or international institution. The book establishes an intellectual basis for the future development of chemistry and is aimed at a wide readership, including students, professionals, engineers, scientists, environmentalists, and anyone interested in a more sustainable future.

Hardcover 396 pp 2011 ISBN 978-3-527-32880-2 €24.90/£22.50/CAD \$37.50/USD \$34.50



Guidelines for Evaluating Process Plant Buildings for External Explosions, Fires, and Toxic Releases

SECOND EDITION

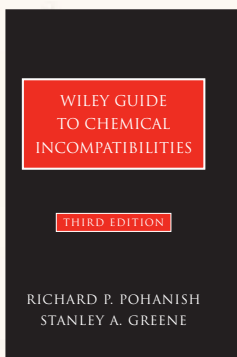
Center for Chemical Process Safety (CCPS)

The siting of permanent and temporary buildings in process areas requires careful consideration of the potential effects of explosions and fires arising from the accidental release of flammable materials. This book, which updates

the original 1996 edition, is a single-source reference that explains the American Petroleum Institute's permanent and temporary building recommended practices and shows how to implement them. New coverage on toxicity and updated standards are also highlighted. Practical and easy to use, this reliable guide is invaluable in implementing safe building practices.

Hardcover 232 pp 2012 ISBN 978-0-470-64367-9 €99.90/£76.95/CAD \$127.00/USD \$115.00





Wiley Guide to Chemical Incompatibilities

THIRD EDITION

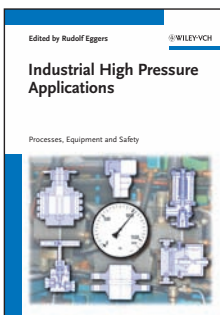
Richard P. Pohanish, Stanley A. Greene

"... a portable reference on reactive substances to guide all personnel... in charge of the handling, storage, and transportation of chemical materials."—**Journal of the American Chemical Society, on the second edition**

This resource covers over 11,000 chemicals! The *Wiley Guide to Chemical Incompatibilities* distills complicated chemical information

in a convenient easy-to-use format that helps readers make safe decisions fast. Its alphabetical organization provides concise incompatibility profiles for thousands of commonly used commercial chemicals, allowing readers to look up a given substance to instantly learn whether it is incompatible with common materials, other chemical substances, structural materials, or personal protective equipment. It provides reliable data on a substance's ability to generate toxic gases, rupture containers, cause polymerization, detonate, or form more dangerous compounds.

Hardcover 1110 pp 2009 ISBN 978-0-470-38763-4 €159.00/€122.00/CAD \$215.00/USD \$195.00



Industrial High Pressure Applications

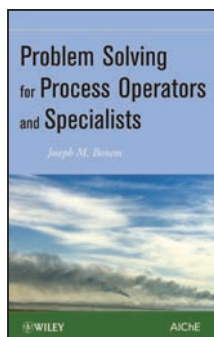
Processes, Equipment and Safety

Rudolf Eggers, Editor

Your source for high-quality information on industrial high pressure applications that can't be found elsewhere. Following an introduction on historical development, the current state, and future trends, this timely and comprehensive publication goes on to describe different industrial processes, including methanol and

other catalytic syntheses, and polymerization and renewable energy processes, before covering safety and equipment issues.

Hardcover 422 pp 2012 ISBN 978-3-527-32586-3 €139.00/€115.00/CAD \$204.00/USD \$185.00



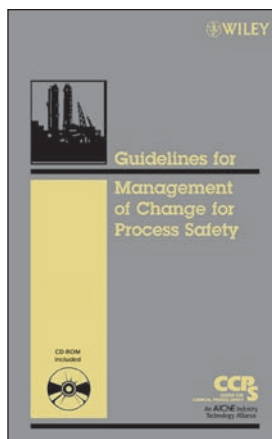
Problem Solving for Process Operators and Specialists

J. M. Bonem

Hone a greater awareness and responsiveness to problems related to processes in operating plants and establish a protocol your facility can implement to attain—and maintain—peak performance. Explore techniques to find, define, and solve process problems; create a daily system to monitor them before they progress to the critical level; and review methods for formulating corrective remedies for typical process

equipment such as pumps, compressors, heat exchangers/furnaces, fractionating towers, and reactors. You'll also learn how to determine the root cause of a problem to reduce repeat failure risk.

Hardcover 344 pp 2011 ISBN 978-0-470-62774-7 €73.90/€56.95/CAD \$92.95/USD \$84.95



Guidelines for Management of Change for Process Safety

Center for Chemical Process Safety (CCPS)

Management of change (MOC) is a process for evaluating and controlling adjustments to facility design, operations, organization, or activities—prior to implementation—to make certain that no new hazards are introduced and that the risk of existing hazards to employees, the public, or the environment is not unknowingly increased. *Guidelines for Management of Change for*

Process Safety incorporates the full spectrum of possible changes and provides guidance for plant and engineering staff on the implementation of effective and efficient MOC procedures that can be applied to improve process safety. Including case studies and real-life examples, plus CD-based support tools, the book details the methods for measuring, auditing, and improving the efficiency and effectiveness of process safety.



Hardcover w/CD-ROM 200 pp 2008 ISBN 978-0-470-04309-7

€89.90/€69.50/CAD \$116.99/USD \$111.00



Guidelines for Risk Based Process Safety

Center for Chemical Process Safety (CCPS)

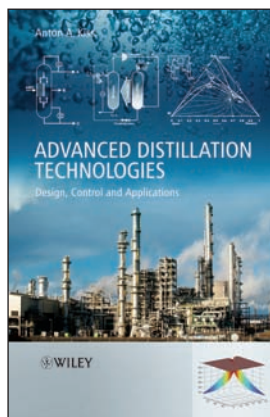
"... a very comprehensive and thorough discussion of risk based process safety management systems... an invaluable reference source."—**Journal of Loss Prevention in the Process Industries**

"This book is a very well-written, detailed analysis of industrial chemical plant safety. Following its guidelines, I am sure, will result in many fewer accidents in the

future."—**Journal of Hazardous Material**

Guidelines for Risk Based Process Safety relates guidelines for industries that manufacture, consume, or handle chemicals by focusing on new ways to design, correct, or improve process safety management practices. This new framework for thinking about process safety builds upon the original process safety management ideas published in the early '90s, integrates industry lessons learned over the intervening years, utilizes applicable total quality principles, and organizes it all in a way that will prove useful to all organizations—even those with relatively lower hazard activities—throughout the life cycle of a company.

Hardcover 768 pp 2007 ISBN 978-0-470-16569-0 €145.00/€111.00/CAD \$195.99/USD \$178.00



Advanced Distillation Technologies

Design, Control and Applications

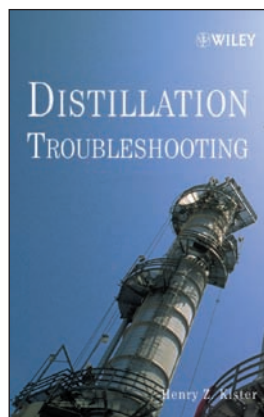
Anton Alexandru Kiss

Winner of the Hoogewerff Jongerenprijs 2013 Award

Gain insight into integrated separations using non-conventional arrangements, including both current and future approaches and technologies. Key topics in this guide comprise major concepts in distillation technology, complex distillation arrangements, DWC design and configurations,

optimal operation, controllability and advanced control strategies, industrial and pilot-scale DWC applications (in ternary separations, azeotropic distillation, extractive distillation, and reactive distillation), HIDiC design and configurations, and heat-pump assisted applications, as well as equipment description (column internals, trays, packing). Coverage also includes a number of novel DWC applications relevant to industrial processes, as well as rigorous steady-state (Aspen Plus) and dynamic simulations (Aspen Dynamics, Matlab and Simulink).

Hardcover 408 pp 2013 ISBN 978-1-119-99361-2 €129.00/£100.00/CAD \$164.95/USD \$149.95



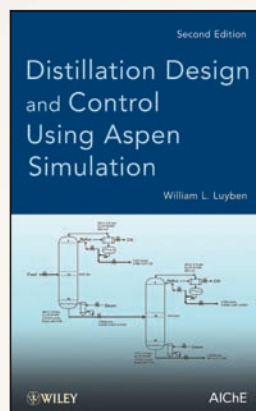
Distillation Troubleshooting

Henry Z. Kister

A must-have resource for those seeking the elusive path to trouble-free distillation, this book presents invaluable hands-on experiences acquired in dealing with distillation and absorption malfunctions, making them readily accessible for those engaged in solving today's problems and avoiding tomorrow's. *Distillation Troubleshooting* covers over 1,200 case histories of problems, diagnoses, solutions, and key lessons. Coverage includes successful and unsuccessful struggles

with plugging, fouling, and coking; histories and prevention of tray, packing, and internals damage; lessons taught by incidents and accidents during shutdowns, commissioning, and abnormal operation; and more.

Hardcover 752 pp 2006 ISBN 978-0-471-46744-1 €112.00/£86.95/CAD \$152.99/USD \$139.00



Distillation Design and Control Using Aspen Simulation

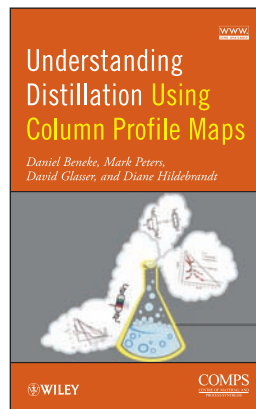
SECOND EDITION

William L. Luyben

Distillation Design and Control Using Aspen Simulation introduces the current status and future implications of this vital technology from the dual perspectives of steady-state design and dynamics. Where traditional design texts have focused mainly on the steady-state economic

aspects of distillation design, William Luyben also addresses such issues as dynamic performance in the face of disturbances. New to this edition is information on the divided wall column (Petlyuk column) and carbon dioxide capture from stack gas, along with coverage of feed composition sensitivity analysis and control structures.

Hardcover 464 pp 2013 ISBN 978-1-118-41143-8
€112.00/£86.95/CAD \$143.00/USD \$130.00



Understanding Distillation Using Column Profile Maps

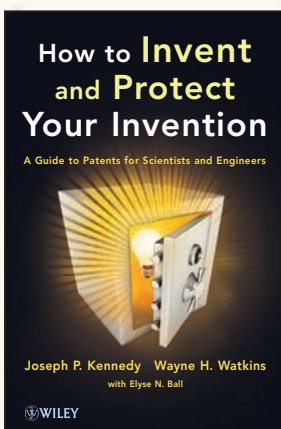
Daniel Beneke, Mark Peters, David Glasser, Diane Hildebrandt

Understanding Distillation Using Column Profile Maps helps readers understand, analyze, and design distillation structures that solve common distillation problems, including distillation by simple columns, side rectifiers and strippers, multiple feed columns, and fully thermally coupled columns. In addition, the

book addresses advanced topics such as reactive distillation, membrane permeation, and validation of thermodynamic models. For all these processes, the authors offer easy-to-follow design techniques, solution strategies, and insights gained using CPMs. Readers get everything they need to fully understand and use CPMs as a design tool. A companion software package lets readers reproduce examples in the book and begin designing their own distillation systems.

Hardcover w/website 384 pp 2013 ISBN 978-1-118-14540-1
€129.00/£100.00/CAD \$164.95/USD \$149.95





How to Invent and Protect Your Invention



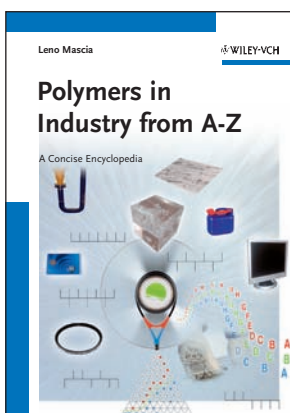
A Guide to Patents for Scientists and Engineers

J. P. Kennedy, Wayne H. Watkins

While almost all chemists and polymer scientists in industry are involved with potentially patentable work, American graduate students are under-exposed to and unprepared for this all-important field. They are unaware of the importance of U.S. patent law and patent practices in shaping their daily industrial existence and future. This

book provides a clear, jargon-free, and comprehensive overview of the patent application process. The chapters included discussions on how to invent, how to get inventions patented, and how to market inventions after securing a patent.

Paperback 248 pp 2012 ISBN 978-1-118-36937-1 €53.90/£40.50/CAD \$65.95/USD \$59.95



Polymers in Industry from A to Z

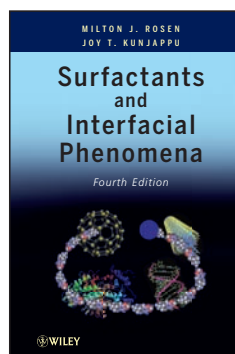
A Concise Encyclopedia

Leno Mascia

Your first-stop personal reference for the polymer field. 1,500 entries provide a comprehensive yet concise overview of the materials, manufacture, structure and architecture, properties, processing, and applications within this vast field, all in one handy volume. A unique mix of theory and application is presented, displaying only

the essential information, extensively cross-linked and via references to the recent scientific literature. Entries include a working definition highlighting the polymer's significance, followed by a brief illustration of the concepts and principles, including tables, drawings, and core equations as appropriate.

Hardcover 380 pp 2012 ISBN 978-3-527-32964-9 €99.00/£85.00/CAD \$149.00/USD \$135.00



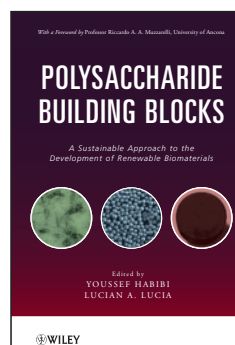
Surfactants and Interfacial Phenomena

FOURTH EDITION

Milton J. Rosen, Joy T. Kunjappu

Use this unparalleled tool for understanding and applying the latest information on surfactants. You'll get an explanation into why and how surfactants operate in interfacial processes (such as foaming, wetting, emulsion formation, and detergency), and view the correlations between a surfactant's chemical structure and its action. Updated and revised to include more modern information, along with an additional three chapters: surfactants in biology and biotechnology, nanotechnology and surfactants, and molecular modeling with surfactant systems, this is the premier text on the properties and applications of surfactants. Problems are included at the end of each chapter to enhance your understanding, along with many tables of data.

Hardcover 616 pp 2012 ISBN 978-0-470-54194-4 €119.00/£90.50/CAD \$149.00/USD \$135.00



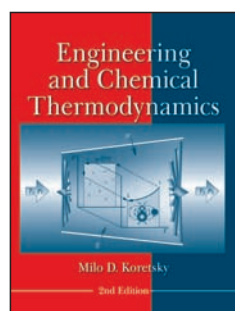
Polysaccharide Building Blocks

A Sustainable Approach to Renewable Biomaterials

Youssef Habibi, Lucian A. Lucia

Survey the composition, properties, characterization, and chemistry of biomaterials, as well as their applications in bioenergy, chemicals, and novel materials. Divided into three parts, covering cellulose-based biomaterials, chitin and chitosan biomaterials, and hemicelluloses and other polysaccharides. Each chapter addresses a separate biomaterial, discussing its chemical, physical, and biological attributes, and hones in on each compound's intrinsic tunability for numerous chemical transformations.

Hardcover 430 pp 2012 ISBN 978-0-470-87419-6 €119.00/£90.50/CAD \$149.00/USD \$135.00



Engineering and Chemical Thermodynamics

SECOND EDITION

Milo D. Koretsky

Help students understand and visualize thermodynamics through a qualitative discussion of the role of molecular interactions and a highly visual presentation of the material. By showing how principles of thermodynamics relate to molecular concepts learned in prior courses, *Engineering and Chemical Thermodynamics, Second Edition* helps students construct new knowledge on a solid conceptual foundation.

Hardcover 690 pp 2013 ISBN 978-0-470-25961-0 €212.00/£54.99/CAD \$174.95/USD \$215.95



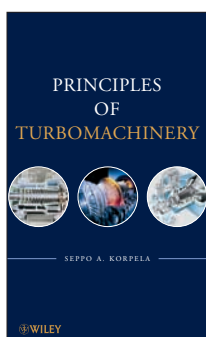
Distillation Control

An Engineering Perspective

Cecil Smith

Approach this subject from a process engineering perspective and get an explanation of the use of steady-state simulations to develop, analyze, and troubleshoot all aspects of column controls, including their practical application and cost benefits. Get quick access to various configurations for single-end and double-end composition control, using either temperature measurements or composition analyzers. Compares and contrasts model predictive control technologies and P&I diagram control configurations for distillation columns and covers complex distillation tower configurations, including heat integration, sidestreams, interstage/coolers, etc. Considers both tray and packed towers.

Hardcover 344 pp 2012 ISBN 978-0-470-38194-6 €77.90/£60.50/CAD \$107.95/USD \$89.95

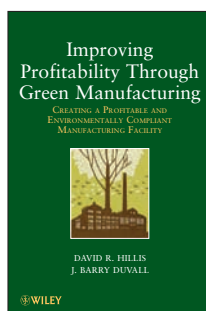


Principles of Turbomachinery

Seppo A. Korpela

Gain a solid background in the field of turbomachinery. Organized to act as both a comprehensive study of turbomachinery as well as a resource that you can dip into as needed, chapters are arranged in order of complexity, and can be read alone, and in or out of sequence, enabling you to learn at your own pace, and tailor the book to meet your own unique needs. New developments, such as wind turbine, and three-dimensional effects in axial turbomachines are also discussed.

Hardcover 480 pp 2011 ISBN 978-0-470-53672-8 €81.90/£63.50/CAD \$103.95/USD \$94.95



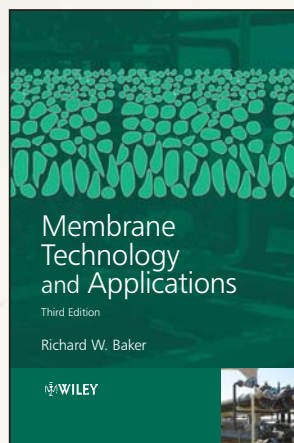
Improving Profitability through Green Manufacturing

Creating a Profitable and Environmentally Compliant Manufacturing Facility

David R. Hillis, J. Barry DuVall

Going green can enhance the bottom line. This nuts-and-bolts how-to outlines precise steps for creating and maintain a manufacturing operation that is both profitable and environmentally friendly. Considering the operation as a whole, this guide embraces many groups within an organization, including marketing, product design, manufacturing technology, manufacturing management, and human resources, showing precisely how each can contribute to reaching the overarching goal. A case study of a profitable manufacturing company shows covers the steps that need to be taken in order to lessen the environmental impact of a manufacturing facility and the real-world methods a company can use to identify problem areas and make improvements.

Hardcover 248 pp 2012 ISBN 978-1-118-11125-3 €53.90/£40.50/CAD \$65.95/USD \$59.95



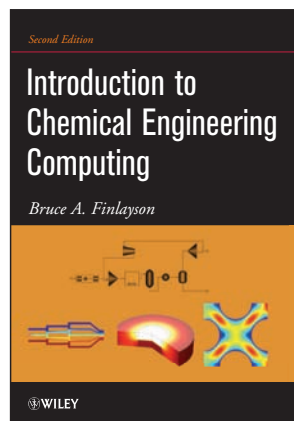
Membrane Technology and Applications

THIRD EDITION

Richard Baker

Simply stated, *Membrane Technology and Applications* is the most authoritative overview available today of separation membranes, their theoretical underpinnings, manufacture, and use. And this third edition has been fully revised and expanded to provide comprehensive, up-to-the-minute coverage of the latest developments in the field. Initial chapters cover the basics of membrane science, including transport theory, membrane and module preparation, and concentration polarization. Thereafter each major membrane application is treated in its own chapter. The book features a wealth of simple, line drawings, graphs, and flow diagrams to augment the text and reinforce key concepts, as well as many photographs of membrane systems in action that provide the reader with a sense of scale.

Hardcover 590 pp 2012 ISBN 978-0-470-74372-0 €97.90/£75.00/CAD \$116.00/USD \$105.00



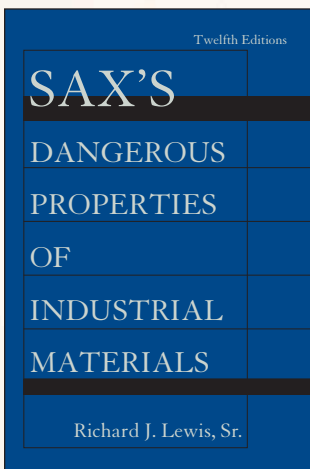
Introduction to Chemical Engineering Computing

SECOND EDITION

Bruce A. Finlayson

Master key software programs and solve complex problems using your computer and Excel®, MATLAB®, Aspen Plus®, and COMSOL Multiphysics®. Moreover, you'll learn how to check your solutions and validate your results to make sure you have solved the problems correctly. All the chapters contain clear instructions, figures, and examples to guide you through all the programs and types of chemical engineering problems. Problems at the end of each chapter, ranging from simple to difficult, allow you to gradually build your skills, whether you solve the problems yourself or in teams.

Paperback 402 pp 2012 ISBN 978-0-470-93295-7 €53.90/£40.50/CAD \$65.95/USD \$59.95



Sax's Dangerous Properties of Industrial Materials

TWELFTH EDITION
FIVE-VOLUME SET



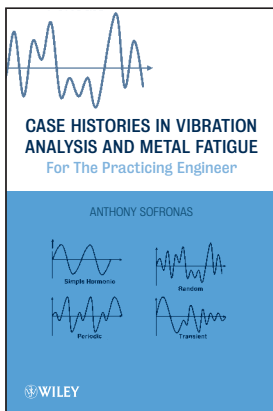
Richard J. Lewis Sr.

Since its inception in the early 1950s, *Sax's Dangerous Properties of Industrial Materials* has become the primary source for those who need to evaluate the hazardous potential of substances used in commerce. Sax's is the only reference that combines—for so many substances—data on toxicology, flammability, reactivity, explosive potential, and regularity information.

Now in its twelfth edition, Sax's contains extensive data on approximately 28,000 substances, including 2,400 new entries. Numerous entries have been revised to reflect the latest information. What's more, this extraordinary guide has been thoroughly updated to contain immediately dangerous to life or health (IDLH) levels for approximately 1,000 chemicals. It also covers exposure-level classifications for a number of regulatory agencies, from OSHA to the U.S. Department of Transportation.

In short this latest edition of *Sax's Dangerous Properties of Industrial Materials* is an essential resource for every professional engaged in industrial hygiene, safety, emergency response, law, and policy making.

Hardcover 5862 pp 2012 ISBN 978-0-470-62325-1 €600.00/£397.00/CAD \$655.00/USD \$595.00



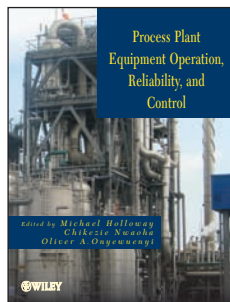
Case Histories in Vibration Analysis and Metal Fatigue for the Practicing Engineer

Anthony Sofronas

Using a plethora of real-world examples, this informative guide helps readers understand and solve industrial problems related to various forms of vibration. Case studies demonstrate how vibration theory can be translated to field application by documenting examples of past vibration problems both common and unique, their root causes, and the methods that were used to solve

each problem. Written with accessibility in mind, the book simplifies complex plant problems using familiar terms that are relevant to the practicing engineer, with reliance on excessive theoretical references. A wide range of equipment types is covered as the guide addresses both machinery and pressure vessel equipment failures caused by vibration.

Hardcover 306 pp 2012 ISBN 978-1-118-16946-9 €69.90/£53.50/CAD \$87.95/USD \$79.95



Process Plant Equipment

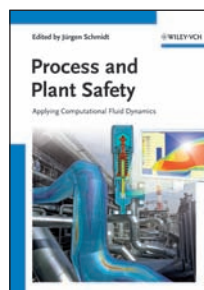
Operation, Reliability and Control

Michael Holloway, Chikezie Nwaoha, Oliver A. Onyewuenyi, Editors

Reduce downtime and unscheduled shutdowns while improving operational excellence prolonging the service life of equipment, troubleshoot problems, monitor issues, and properly select process plant equipment. Each chapter covers selection criteria and has a detailed refer-

ence for further reading while covering common problems that occur with process equipment. Includes topics on maintenance strategies, reliability strategies, equipment management strategies, and process component function and performance criteria.

Hardcover 736 pp 2012 ISBN 978-1-118-02264-1 €129.00/£100.00/CAD \$164.95/USD \$149.95



Process and Plant Safety

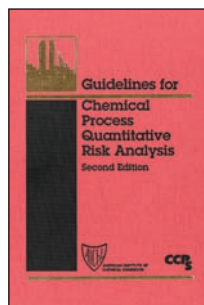
Applying Computational Fluid Dynamics

Jürgen Schmidt, Editor

Your guide to elaborating and determining the principles, assumptions, strengths, limitations, and application areas of utilizing CFD in process and plant safety, and safety management. With CFD tools, a great amount of knowledge can be gained as both the necessary safety measures and the

economic operation of plants can be simultaneously determined. Get recommendations relating to guidelines, procedures, frameworks, and technology for creating a higher level of safety for chemical and petrochemical plants. Modeling aids and concrete examples of industrial safety measures for hazard prevention are included.

Hardcover 406 pp 2012 ISBN 978-3-527-33027-0 €119.00/£100.00/CAD \$176.00/USD \$160.00



Guidelines for Chemical Process Quantitative Risk Analysis

SECOND EDITION

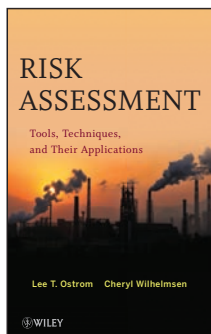
Center for Chemical Process Safety (CCPS)

There are no simple answers when complex issues are concerned, but CPQRA2 offers a cogent, well-illustrated guide to applying these risk-analysis techniques, particularly to risk control studies. This second edition is packed with information reflecting advances in this evolving methodology and includes

worked examples on a CD-ROM.



Hardcover w/CD-ROM 748 pp 1999 ISBN 978-0-8169-0720-5
€199.00/£153.00/CAD \$267.99/USD \$244.00



Risk Assessment

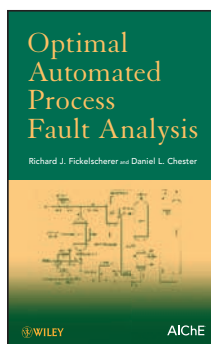
Tools, Techniques, and Their Applications

Lee T. Ostrom, Cheryl Wilhelmsen

Easily adapt these risk assessment techniques to your unique situation. Move from the concept of risk into more complex techniques. Each chapter presents a technique and demonstrates how it is used. Based on the experience of the authors in the Airforce and Navy and utilizing case studies demonstrating how each of the techniques can be used in analyzing a range of scenarios. Includes supplemental electronic copies of

worksheets and other materials for you to use during risk assessment procedures.

Hardcover 416 pp 2012 ISBN 978-0-470-89203-9 €77.90/€60.50/CAD \$98.95/USD \$89.95



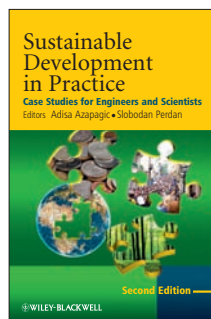
Optimal Automated Process Fault Analysis

Richard J. Fickelscherer, Daniel L. Chester

This book presents the method of minimal evidence (MOME), a model-based diagnostic strategy that facilitates the development and implementation of optimal automated process fault analyzers. The authors demonstrate how MOME is used to diagnose single and multiple fault situations, determine the strategic placement of process sensors, and distribute fault analyzers within large processing systems. The

book concludes with a summary of the lessons learned by employing FALCONEER™ IV in actual process applications, including the benefits of “intelligent supervision” of process operations.

Hardcover 224 pp 2013 ISBN 978-1-118-37231-9 €87.90/€66.95/CAD \$109.95/USD \$99.95



Sustainable Development in Practice

Case Studies for Engineers and Scientists

SECOND EDITION

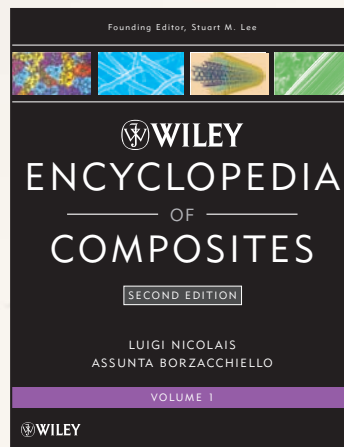
Adisa Azapagic, Slobodan Perdan, Editors

Explore the concept of sustainable development and its implications for science and engineering, and look at how sustainability criteria can be combined with traditional scientific and engineering considerations to design and operate industrial systems in a more sustainable manner.

Taking a life-cycle approach to addressing economic, environmental, and social issues, you'll review a series of new practical case studies drawn from a range of sectors, including mining, energy, food, buildings, transport, waste, and health. The second edition explores the concept of sustainable development and its implications for science and engineering practice and looks at how sustainability criteria can be combined with traditional scientific and engineering considerations to design and operate industrial systems in a more sustainable manner.

Hardcover 536 pp 2011 ISBN 978-0-470-71871-1 €119.00/€90.00/CAD \$164.95/USD \$149.95

Paperback 536 pp 2011 ISBN 978-0-470-71872-8 €41.90/€32.50/CAD \$76.95/USD \$69.95



Wiley Encyclopedia of Composites

FIVE-VOLUME SET

Luigi Nicolais, Assunta Borzacchiello, Stuart M. Lee, Editors

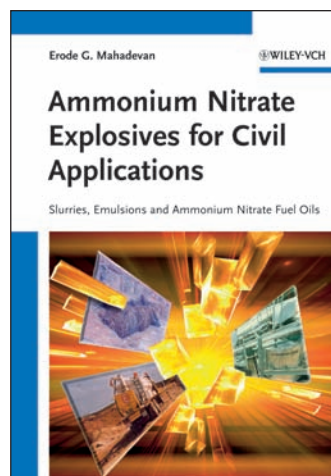


Cover all areas of composite technology, including characterization, formulation, design, evaluation, processing, manufacture, testing, and reliability. You'll benefit from over 260 articles—90 percent of which are new to this edition—ranging

in topic from naturally occurring composites to such wide-scale industrial applications as fiber reinforcement to the latest in materials development, including graphene and carbon nanotubes. Featuring contributions from international experts representing industry and academia, this book reviews the role and applications of composites in nanotechnology, aerospace, automotive, biomedical engineering, sustainability, electronics, optics, defense, energy, transportation, and more.

Hardcover 3444 pp 2012 ISBN 978-0-470-12828-2

€1540.00/€1197.00/CAD \$1898.00/USD \$1795.00



Ammonium Nitrate Explosives for Civil Application

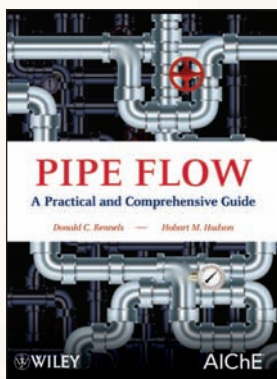
Slurries, Emulsions and Ammonium Nitrate Fuel Oils

Erode G. Mahadevan

Written by an expert in the field, this book describes the science and technology of formulation and manufacturing of non-nitroglycerine explosives with ammonium nitrate as the main ingredient. Based on the author's industry

experience of more than thirty years, it provides an unparalleled treatment of one of the most commercially important classes of explosives. Essential for every serious explosives researcher, presenting the chemistry, physics, and materials science of ammonium nitrate explosives as a prerequisite for further progress in the field.

Hardcover 230 pp 2013 ISBN 978-3-527-33028-7 €99.00/€85.00/CAD \$154.00/USD \$140.00



Pipe Flow

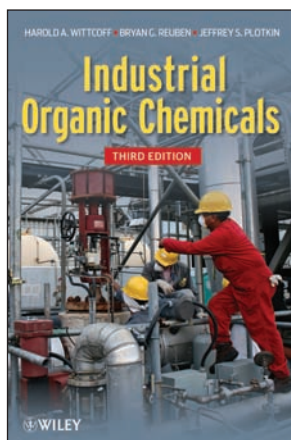
A Practical and Comprehensive Guide

**Donald C. Rennels,
Hobart M. Hudson**

Achieve more energy efficient system designs by investigating virtually all pipe flow configurations while accessing up-to-date loss coefficients for various pipe joints. Experimental test data and formulas for loss coefficients from worldwide

sources are evaluated, integrated, and developed into widely applicable equations arranged in straightforward tables and diagrams. The processes used to select and develop loss coefficient data for the various configurations are also presented. Coverage includes conservation equations, incompressible flow, compressible flow, flow-induced vibration, transient analysis, and uncertainty analysis.

Hardcover 312 pp 2012 ISBN 978-0-470-90102-1
€77.90/£60.50/CAD \$98.95/USD \$89.95



Industrial Organic Chemicals

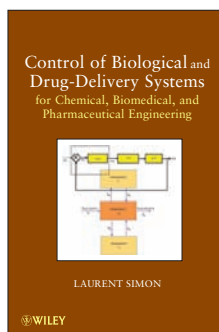
THIRD EDITION

Harold A. Wittcoff, Bryan G. Reuben, Jeffrey S. Plotkin

Learn how the majority of industrial organic chemicals and polymers are derived from seven major building blocks produced from petroleum and natural gas. You'll get quick access to the chemistry of these building block chemicals and their derivatives, and

learn how they are manufactured, as well as their uses and economic importance and the associated environmental concerns. The emergence of new companies such as INEOS, Formosa Plastics, LyondellBasell, and SABIC is followed, as is the growth of the chemical industry in China, India, the Middle East, and Russia. A new "Green" chapter that covers renewables, chemicals, and fuels is included.

Hardcover 848 pp 2012 ISBN 978-0-470-53743-5
€129.00/£100.00/CAD \$164.95/USD \$149.95



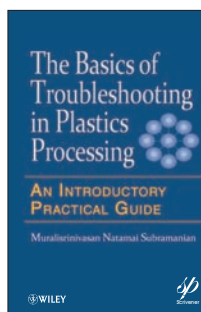
Control of Biological and Drug-Delivery Systems for Chemical, Biomedical, and Pharmaceutical Engineers

Laurent Simon

Readers with non-bioengineering backgrounds will appreciate this concise source of information that will help them apply mathematical concepts to various biological problems. Unique in its approach, the book combines knowledge of process dynamics and basic control theory to analyze a range of bio-

processes and controlled drug-release devices. As such, it presents methods for analyzing complex biological problems using control theory and simplifies the problems using mathematical or computational analyses. Detailed examples, case studies, computer projects, and step-by-step solutions to numerical problems using computational software are included. The work also contains additional problems at the end of each chapter and a solution manual for those who adopt it as a text.

Hardcover 384 pp 2013 ISBN 978-0-470-90323-0 €87.90/£66.95/CAD \$109.95/USD \$99.95



The Basics of Troubleshooting in Plastics Processing

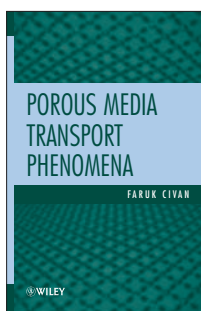
An Introductory Practical Guide

Muralisrinivasan Natamai Subramanian

The Basics of Troubleshooting in Plastics Processing is a concise practical guide that delivers a broad introduction to the properties of thermoplastics and additives, and covers the major processes (extrusion, injection molding, rotational molding, blow molding, and thermoforming). It provides readers with an improved understanding of the basics by explain-

ing the science behind the technology so that the root causes of problems can be identified and solved. The book also addresses troubleshooting in plastics processing in order to emphasize its importance to the production of high-quality end products. Each chapter contains both practical and detailed technical information.

Hardcover 224 pp 2011 ISBN 978-0-470-62606-1 €109.00/£83.50/CAD \$138.00/USD \$125.00



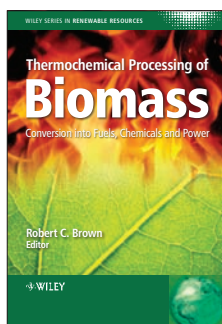
Porous Media Transport Phenomena

Faruk Civan

Covering general porous media applications, including the effects of temperature and particle migration, and placing an emphasis on energy resource development, the book provides an overview of mass, momentum, and energy conservation equations, and their applications in engineered and natural porous media for general applications. Offering a multidisciplinary approach to transport in porous media, material is presented in a uniform format with consistent

SI units. An indispensable resource on an extremely wide and varied topic drawn from numerous engineering fields, this new book includes a solutions manual for all exercises found in the book, additional questions for study purposes, and PowerPoint slides that follow the order of the text.

Hardcover 488 pp 2011 ISBN 978-0-470-64995-4 €109.00/£83.50/CAD \$138.00/USD \$125.00



Thermochemical Processing of Biomass

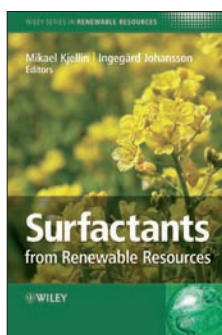
Conversion into Fuels, Chemicals and Power

Robert C. Brown, Editor

This work offers a comprehensive examination of the large number of possible pathways for converting biomass into fuels and power through thermochemical processes. It brings together a widely scattered body of information into a single volume that allows comparison of the various thermo-

chemical pathways. Coverage includes combustion, gasification, fast pyrolysis, hydrothermal treating, and catalytic conversion of sugars. Also examines the upgrading of syngas and bio-oil to liquid transportation fuels and the economics of the various processes for producing fuels and power.

Hardcover 350 pp 2011 ISBN 978-0-470-72111-7 €112.00/£85.00/CAD \$160.00/USD \$145.00



Surfactants from Renewable Resources

Mikael Kjellin, Ingegård Johansson, Editors

Most surfactants today are readily biodegradable and low-toxic to the aquatic environment—the two criteria for green surfactants. However, there is still interest in finding more renewable sources for surfactants and there are ways of making the building blocks for these surfactants from natural sources. This text focuses on bio-based products that have the potential to

improve sustainability of natural resources and environmental quality, while competing on an economic level, and it brings together, in one source, information on new biodegradable surfactants with safer properties for modern industrial formulations.

Hardcover 336 pp 2010 ISBN 978-0-470-76041-3 €122.00/£95.00/CAD \$171.00/USD \$155.00



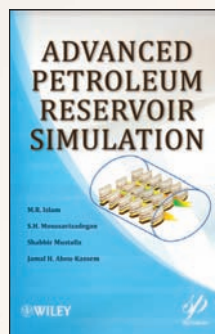
Zero-Waste Engineering

M. M. Khan, M. R. Islam

Explore the latest scientific principles on which sustainability and zero-waste engineering can be based. Written by an acknowledged expert in the field, this seminal work clearly presents new models for energy efficiency, cooling processes, and natural chemical and material selection in industrial applications and business. It explains how green buildings and green homes can be efficiently built and operated with zero waste.

And it offers case histories and successful experiments in sustainability and zero-waste engineering as it applies to construction, energy production, and many other areas of engineering.

Hardcover 488 pp 2012 ISBN 978-0-470-62604-7 €169.00/£130.00/CAD \$215.00/USD \$195.00



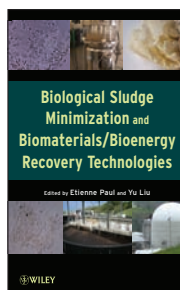
Advanced Petroleum Reservoir Simulation

Rafiq Islam, S. H. Moussavizadegan, Shabbir Mustafiz, Jamal H. Abou-Kassem

This state-of-the-art publication in petroleum simulations describes solution techniques that allow multiple solutions to the complete equations, without linearization; solves the most difficult reservoir engineering problems, such as viscous fingering; discusses solution schemes in relation to other disciplines and can revolutionize risk

analysis and decision making; and includes a companion CD with 3-D, 3-phase multipurpose simulator code.

Hardcover w/CD-ROM 467 pp 2010 ISBN 978-0-470-62581-1 €175.00/£135.00/CAD \$238.00/USD \$216.00



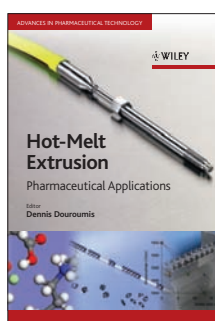
Biological Sludge Minimization and Biomaterials/Bioenergy Recovery Technologies

Etienne Paul, Yu Liu, Editors

Take a look at cutting-edge techniques for reducing sludge production, converting sludge into a value-added material, recovering useful resources from sludge, and sludge incineration. Reflecting the impact of new stringent environmental legislation, you get a frank appraisal

of how sludge can be realistically managed, with coverage of key concerns and the latest tools including: fundamentals of biological processes for wastewater treatment, wastewater microbiology, and microbial metabolism; technologies for sludge reduction, with a focus on reducing microbial growth yield as well as enhancing sludge disintegration; the use of the microbial fuel cell (MFC) system for the sustainable treatment of organic wastes and electrical energy recovery.

Hardcover 536 pp 2012 ISBN 978-0-470-76882-2 €95.90/£73.50/CAD \$121.00/USD \$110.00



Hot-Melt Extrusion

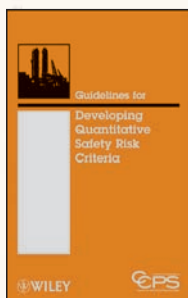
Pharmaceutical Applications

Dionysios Douroumis, Editor

Survey the main instrumentation, operation principles, and theoretical background of HME with a focus on HME drug delivery systems, dosage forms, and clinical studies (including pharmacokinetics and bioavailability) of HME products. This important new book presents a comprehensive study on the pharmaceutical applications of hot-melt

extrusion, a field which until now has remained fragmented. By addressing basic operation principles and critical aspects of HME as well as cutting-edge trends of extrusion based manufacturing technologies you'll better understand the effective processes needed to develop pharmaceutical products from lab scale to commercialization.

Hardcover 382 pp 2012 ISBN 978-0-470-71118-7 €142.00/£110.00/CAD \$198.00/USD \$180.00



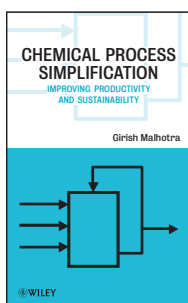
Guidelines for Developing Quantitative Safety Risk Criteria

Center for Chemical Process Safety (CCPS)

Written by a committee of safety professionals, this guide shows readers how they can develop solid risk tolerance criteria for their project or organization. It includes case examples used by NASA, earthquake response teams, and the International Maritime Organization, among others, to demonstrate how the book's advice can be applied in real-world situations. It also

includes information about risk tolerance criteria that has been used and published by government and regulatory agencies and companies large and small. Following the guidance available here, safety managers will be better able to evaluate the frequency, severity, and consequence of human injury and implement programs that will reduce their occurrence.

Hardcover 211 pp 2009 ISBN 978-0-470-26140-8 €85.90/€65.95/CAD \$116.00/USD \$105.00



Chemical Process Simplification

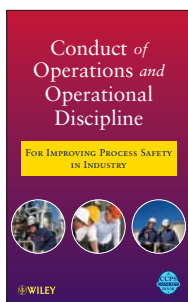
Improving Productivity and Sustainability

Girish K. Malhotra

While emphasizing conservation and sustainable strategies, this book provides clear instructions for improving the manufacturing technologies used in creating products. By simplifying the chemistry, process development, and manufacturing practices and processes, the book provides a structured approach to producing quality products with little waste,

making the process not only efficient but environmentally friendly. Illustrated with best-practice case studies, this is an essential resource for chemical engineers, chemists, plant engineers, and operating personnel in any chemical-related business.

Hardcover 282 pp 2011 ISBN 978-0-470-48754-9 €77.90/€60.50/CAD \$107.95/USD \$94.95



Conduct of Operations and Operational Discipline

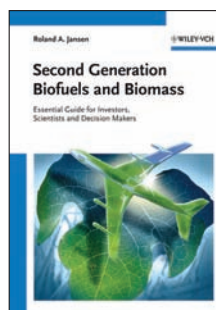
For Improving Process Safety in Industry

Center for Chemical Process Safety (CCPS)

Ensure safety and exercise caution with all your process safety management (PSM) systems by rigorously executing system requirements every time. The failure of just one person, just one time, in completing a job task correctly can unfortunately lead to serious

injuries and potentially catastrophic incidents. Design, implementation, and daily execution of PSM systems are, in fact, dependent on workers at all levels in the organization; this is why high levels of Operational Discipline help build strong PSM performance and overall operational excellence. *Guidelines for Conduct of Operations for Process Safety* details both soft and hard management practices that encourage your staff while holding them accountable for all the complex elements of process safety.

Hardcover 242 pp 2011 ISBN 978-0-470-76771-9 €105.00/€80.50/CAD \$144.00/USD \$127.00



Second Generation Biofuels and Biomass

Essential Guide for Investors, Scientists and Decision Makers

Roland A. Jansen

At last, a book that offers an examination of all facets of the bioenergy market. This indispensable guide to investing in bioenergy commodities concisely details second-generation biofuels from a scientific, technical, and economic perspective and explores

their global environmental, political, and financial impact. *Second Generation Biofuels and Biomass* describes the increasing number of second generation biodiesel projects that are now emerging in anticipation of growing sustainability concerns by governments and in response to market demands for improved process efficiencies and greater feedstock production yields. Undeniably, this is an important sourcebook for scientists, investors, politicians, and decision makers in the energy sector.

Hardcover 272 pp 2013 ISBN 978-3-527-33290-8 €69.90/€60.00/CAD \$109.95/USD \$99.95



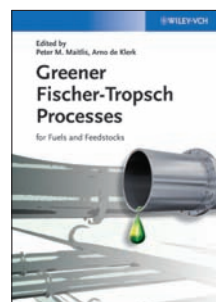
Separation and Purification Technologies in Biorefineries

Shri Ramaswamy, Huajiang Huang, Bandrau Ramarao, Editors

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,

affinity-based separations, membrane based separations, solid-liquid separations, and hybrid/integrated reaction-separation systems.

Hardcover 608 pp 2013 ISBN 978-0-470-97796-5 €162.00/€125.00/CAD \$220.00/USD \$200.00

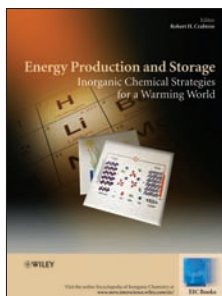


Greener Fischer-Tropsch Processes for Fuels and Feedstocks

Peter M. Maitlis, Arno de Klerk

Add this comprehensive, up-to-date overview—from the basic science of the process to commercial issues—to your shelf. In addition to the chemical and industrial side of Fischer-Tropsch synthesis, this text deals with process economics as well as such green concepts as sustainability and environmental care. The result is a practical reference for researchers and engineers working on fuel processing or fuel cell technologies in industry. It equally serves as a great introduction to the subject for graduate courses in chemistry and chemical engineering.

Hardcover 390 pp 2013 ISBN 978-3-527-32945-8 €129.00/€105.00/CAD \$176.00/USD \$160.00



Energy Production and Storage

Inorganic Chemical Strategies for a Warming World

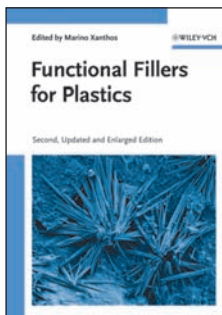
Robert H. Crabtree, Editor

New forms of energy production, storage, and transport are one of the key scientific challenges in the twenty-first century. And inorganic chemistry is proving essential to the development of new types of solar and fuel cells, batteries, and catalytic processes.

This book explores inorganic chemistry as

it relates to the invention of solar cells, fuel cells, hydrogen economy, oxygen alternatives, batteries, fuels for fuel cells, and high-energy liquids or solids that can easily be stored and transported and may well come to replace oil.

Hardcover 426 pp 2010 ISBN 978-0-470-74986-9 €149.00/£115.00/CAD \$220.00/USD \$200.00



Functional Fillers for Plastics

Marino Xanthos, Editor

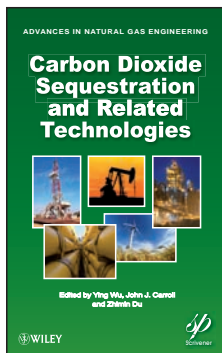
"This is a book that I can recommend: it offers an excellent balance of polymer chemistry and materials engineering. Having already made use of the information contained within, I can attest to its utility and recommend it highly."

—Advanced Materials

This book offers a comprehensive overview of the major mineral and organic fillers for plastics, their production, structure, and

properties, as well as their applications in terms of primary and secondary functions.

Hardcover 531 pp 2010 ISBN 978-3-527-32361-6 €169.00/£140.00/CAD \$270.00/USD \$245.00



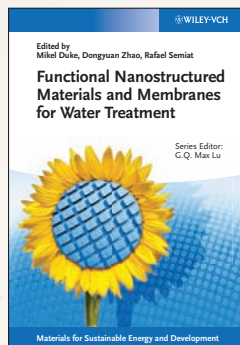
Carbon Dioxide Sequestration and Related Technologies

Ying Wu, John J. Carroll, Zhimin Du, Editors

This volume presents some of the latest information on these processes, covering physical properties, operations, design, reservoir engineering, and geochemistry for AGI and the related technologies. Readers will examine carbon dioxide sequestration, one of the primary hopes of many in the industry to go green by capturing damaging greenhouse gases. You'll explore recent advances in natural gas engineering,

in both upstream (drilling) and downstream (refining). And the book also covers technologies for working towards a zero-emission process in natural gas production.

Hardcover 508 pp 2011 ISBN 978-0-470-93876-8 €169.00/£130.00/CAD \$215.00/USD \$195.00



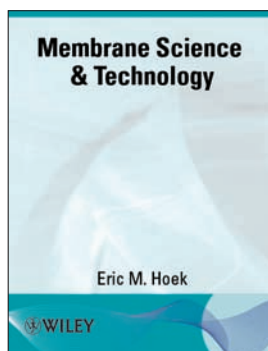
Functional Nanostructured Materials and Membranes for Water Treatment

Mikel Duke, Dongyuan Zhao, Rafael Semiat, Editors

With its emphasis on the application of nanotechnology to improve water treatment processes, this handbook addresses the real needs of scientists and others working in the industry. It covers materials ranging from ceramic membranes to functional nanoparticles,

carbon nanotubes, and biological materials, and also addresses theoretical aspects. Each chapter is written by leading international experts in the field, examining in detail desalination, adsorption, filtration, and the destruction and conversion of pollutants, as well as the monitoring of water quality. All along, the book discusses the most fundamental concepts, exciting breakthroughs, and future developments in the field.

Hardcover 318 pp 2013 ISBN 978-3-527-32987-8 €129.00/£105.00/CAD \$231.00/USD \$210.00



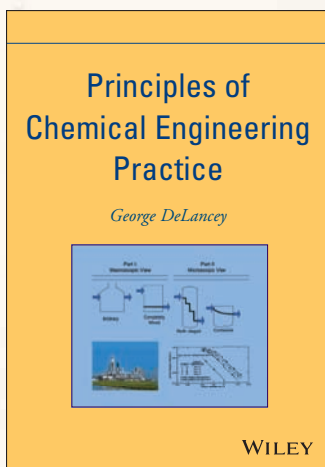
Membrane Science & Technology

Eric M. Hoek

Membrane Science and Technology delivers a comprehensive overview of membrane materials, technologies, and processes with a rigorous presentation of theory, from classical to modern. The coverage ranges from the basic principles of membrane separations and theoretical fundamentals to such specific applications as filtration, dialysis, reverse and forward osmosis,

electrochemical processes, active transport, and hybrid processes such as pervaporation and membrane reactors. It clearly presents difficult concepts for readers new to the topic, while offering valuable theoretical and engineering information for membrane experts.

Hardcover 516 pp 2013 ISBN 978-0-470-93294-0 €109.00/£83.50/CAD \$138.00/USD \$125.00



Principles of Chemical Engineering Practice

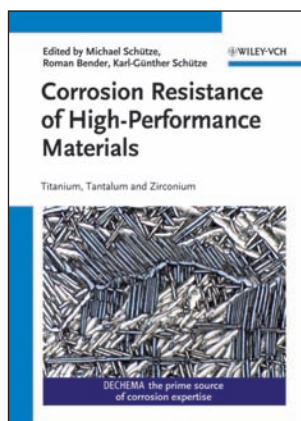
George DeLancey

Unique in its approach, this text facilitates the novice's execution of process analysis and plant design in an accessible, logical fashion. Here, you get all-in-one coverage of topics from process plant interactions to economic analyses to the thermodynamic properties of streams. The focus is on solutions to integrated problems in chemical engineering, such as materials and



energy, kinetics, and transport fundamental to practical plant design. The book also addresses the evolution in chemical engineering, such as its emphasis placed on the degrees of freedom analysis.

Hardcover 416 pp 2013 ISBN 978-0-470-53674-2 €152.00/£117.00/CAD \$210.00/USD \$175.00



Corrosion Resistance of High-Performance Materials

Titanium, Tantalum, Zirconium

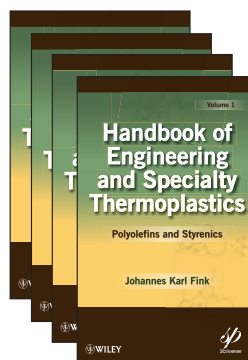
Michael Schütze, Roman Bender, Karl-Günther Schütze, Editors

Although titanium, tantalum, and zirconium are not noble metals, they are the best choice whenever high corrosion resistance is required. As their extraordinary corrosion resistance is coupled with an excellent formability and weldability these materials are very valuable for a large number of



applications such as heat exchangers, reaction vessels, furnace construction, radiation shielding, implants for medical technology, and capacitor components in electronics. Derived from the renowned *DECHEMA Corrosion Handbook*, this text provides a comprehensive overview of corrosion protection and prevention on the high-performance materials titanium, tantalum, and zirconium.

Hardcover 526 pp 2013 ISBN 978-3-527-33435-3 €199.00/£165.00/CAD \$231.00/USD \$210.00



Handbook of Engineering and Specialty Thermoplastics

FOUR-VOLUME SET

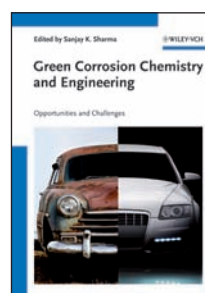
Johannes Karl Fink

Plastics, just like any other material, have experienced a rapid development over the last decade and it is vital for chemical engineers to have a single source documenting all these developments. Arranged according to the chemical constitution of polymers, this four-volume set reviews the developments that have taken place in the last



decade, focusing on common types of polymers belonging to the class of water soluble polymers. It covers a wide range of applications, including polyolefins, styrenics, water soluble polymers, polyether, polyesters, and nylon.

Hardcover 1360 pp 2012 ISBN 978-1-118-10124-7 €600.00/£467.00/CAD \$770.00/USD \$700.00



Green Corrosion Chemistry and Engineering

Opportunities and Challenges

Sanjay K. Sharma, Editor

There are eco-friendly ways to deal with corrosion—many ways, in fact. With its unique focus on problems for societies and economies affected by corrosion, this book provides an up-to-date overview of the progress in greener corrosion chemistry and

engineering solutions. A range of international experts explain how the economic and environmental consequences of corrosion can be countered with the help of science and technology. Major parts of the book are devoted to corrosion prevention in the naval and energy sector as well as to corrosion monitoring and waste management.

Paperback 430 pp 2012 ISBN 978-3-527-32930-4 €69.00/£60.00/CAD \$105.00/USD \$95.00

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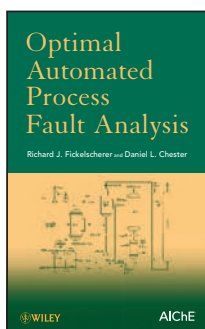
Inkjet Technology for Digital Fabrication

Ian M. Hutchings, Graham D. Martin, Editors

Beginning with an overview of the fundamentals, this book covers the key components—for example piezoelectric print-heads and fluids for inkjet printing—and the processes involved. It goes on to describe specific applications (e.g., MEMS, printed circuits, active and passive electronics,

biopolymers and living cells, and additive manufacturing). Detailed case studies are included on flat-panel OLED displays, RFID (radio-frequency identification) manufacturing, and tissue engineering. A comprehensive examination of the current technologies and future directions of inkjet technology completes the coverage.

Hardcover 390 pp 2013 ISBN 978-0-470-68198-5 €142.00/£110.00/CAD \$176.00/USD \$160.00



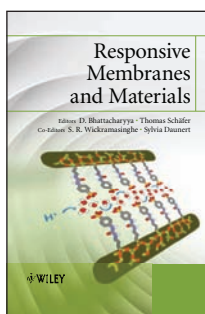
Optimal Automated Process Fault Analysis

R. J. Fickelscherer

It is possible to conduct automated fault analysis economically and at any level of detail. This book presents MOME (method of minimal evidence), a model-based diagnostic strategy that facilitates the development and implementation of optimal automated process fault analyzers. MOME was created at the University of Delaware by the researchers who developed the FALCON system, a

real-time, online process fault analyzer. The authors demonstrate how MOME is used to diagnose single and multiple fault situations, determine the strategic placement of process sensors, and distribute fault analyzers within large processing systems.

Hardcover 224 pp 2013 ISBN 978-1-118-37231-9 €87.90/£66.95/CAD \$109.95/USD \$99.95



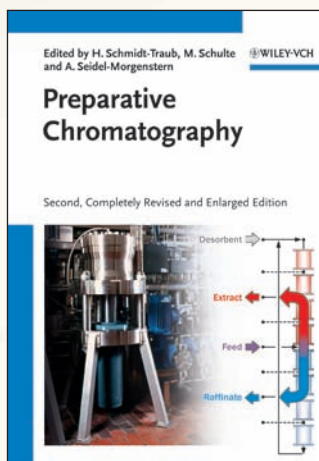
Responsive Membranes and Materials

D. Bhattacharyya, Thomas Schäfer, S. R. Wickramasinghe, Sylvia Daunert, Editors

The development of new multi-functional membranes and materials that respond to external stimuli, such as pH; temperature; light; and biochemical, magnetic, or electrical signals, represents a new approach to separations, reactions, or recognitions. Covering recent advances in the generation and application

of responsive materials, this manual covers the development and design of responsive membranes and materials. Other topics include carbon nanotube membranes; tunable separations, reactions, and nanoparticle synthesis; responsive membranes for water treatment; biomimetic polymer gels; and much more.

Hardcover 432 pp 2013 ISBN 978-0-470-97430-8 €142.00/£110.00/CAD \$171.00/USD \$155.00



Preparative Chromatography

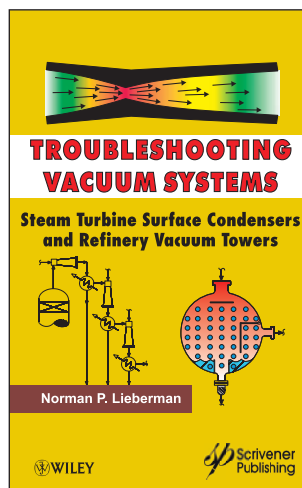
SECOND, COMPLETELY REVISED AND ENLARGED EDITION

H. Schmidt-Traub, Michael Schulte, Andreas Seidel-Morgenstern, Editors

Completely revised to reflect the developments in this fast-changing field, this new edition features over 35 percent new content. It retains the interdisciplinary approach that elegantly combines the chemistry and engineering involved to describe the conception and improvement of chromatographic processes. It also covers recent advances in preparative chromatographic processes for the separation of smaller molecules using standard laboratory equipment as well as the detailed conception of industrial chemical plants. The increase in biopharmaceutical substances is reflected by new and revised chapters on different modifications of continuous chromatography as well as ion-exchange chromatography and other separation principles widely used in biochromatography.

It also covers recent advances in preparative chromatographic processes for the separation of smaller molecules using standard laboratory equipment as well as the detailed conception of industrial chemical plants. The increase in biopharmaceutical substances is reflected by new and revised chapters on different modifications of continuous chromatography as well as ion-exchange chromatography and other separation principles widely used in biochromatography.

Hardcover 566 pp 2013 ISBN 978-3-527-32898-7 €139.00/£115.00/CAD \$204.00/USD \$185.00



Troubleshooting Vacuum Systems

Steam Turbine Surface Condensers and Refinery Vacuum Towers

Norman P. Lieberman

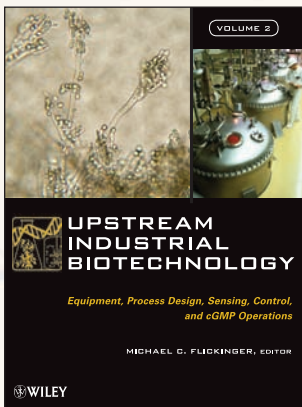
Vacuum systems are in widespread use in the petrochemical plants, petroleum refineries, and power generation plants. The existing texts on this subject are theoretical in nature and only deal with how the equipment functions when in good mechanical condition, from the viewpoint of the equipment vendor. In this much-anticipated volume, one of

the most well-respected and prolific process engineers in the world takes on the troubleshooting of vacuum systems, and especially steam ejectors—an extremely complex and difficult subject that greatly effects the profitability of the majority of the world's refineries.

Hardcover 280 pp 2013 ISBN 978-1-118-29034-7 €152.00/£117.00/CAD \$193.00/USD \$175.00



Derived from the renowned Encyclopedia of Industrial Biotechnology, Bioprocess, Bioseparation, and Cell Technology



Upstream Industrial Biotechnology

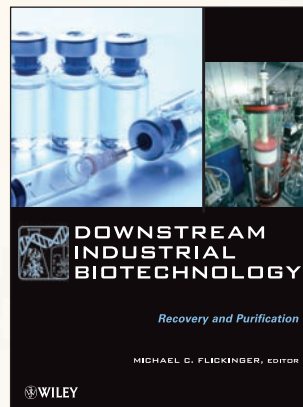
TWO-VOLUME SET

Michael C. Flickinger, Editor

Leveraging the combined knowledge of scores of industry professionals from around the world, these two volumes contain an incredible depth of industry-relevant process information that can quickly be accessed and applied when creating a new upstream platform for accelerating time-to-market for products derived from

DNA and living microbes, cells, or transgenic mammals. Moreover, methods for calibrating bioreactors for oxygen transfer, cell illumination, mixing, shear, foam formation, design of aseptic sampling systems, culture fluid rheology and effective sterilization/decontamination are explained. Also, methods are included for Process Analytical Technologies (PAT) as well as upstream cGMP.

Hardcover 1776 pp 2013 ISBN 978-1-118-13123-7 €395.00/£330.00/CAD \$545.00/USD \$495.00



Downstream Industrial Biotechnology

Recovery and Purification

Michael C. Flickinger, Editor

An obvious companion volume to *Upstream Industrial Biotechnology*, this work shows readers how they can best align upstream and downstream processes and eliminate or combine downstream unit operations so as to minimize the number of process steps and maximize product recovery at a specified concentration and purity.

You also get critical information on large-scale equipment design, fluid transfer systems, and details on many types of industrial bioseparation equipment. Facility design, facility validation, clean-in-place (CIP), and sterilization-in-place (SIP) methods—all vital to meet cGMPS and licensing requirements—are also among the many practical considerations covered here.

Hardcover 867 pp 2013 ISBN 978-1-118-13124-4 €319.00/£265.00/CAD \$435.00/USD \$395.00