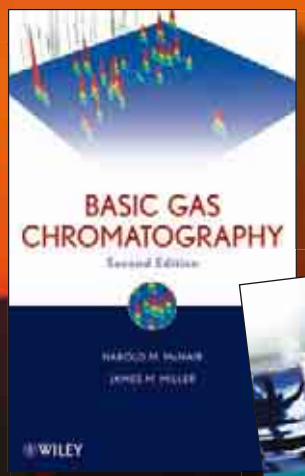
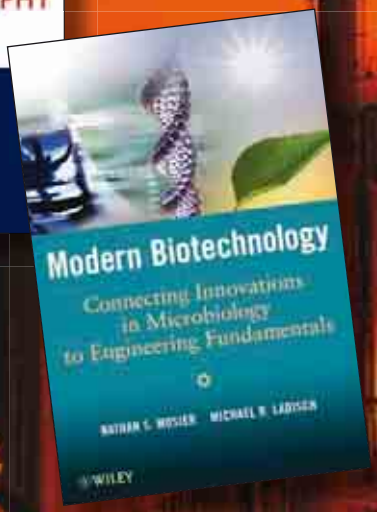
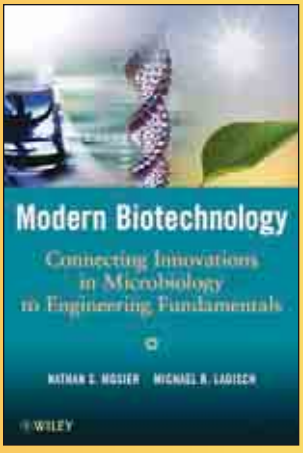
SPECIAL SECTION INSIDE – Featuring Titles from the **CCPS** and **AIChE**!

CHEMICAL ENGINEERING





WILEY-BLACKWELL AIChE100 CCPS Center for Chemical Process Safety WILEY-VCH



Modern Biotechnology

new

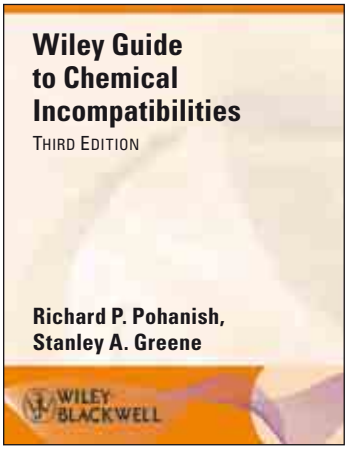
Connecting Innovations in Microbiology and Biochemistry to Engineering Fundamentals

Nathan S. Mosier, Michael R. Ladisch, *Purdue Univ.*

Modern Biotechnology introduces readers to the basics of genetic engineering, recombinant organisms, wild-type fermentations, metabolic engineering, and microorganisms for the production of small molecule bioproducts. The text includes a brief historical perspective and economic rationale on the impact of regulation on biotechnology production, as well as chapters on biofuel, biotechnology in relation to metabolic pathways and microbial fermentations, enzymes and enzyme kinetics, metabolism, biological energetics, metabolic pathways, nucleic acids, genetic engineering, recombinant organisms, and the production of monoclonal antibodies. Provides a window on biotechnology to process engineers and scientists in the chemical, biochemical, bioproducts, and biofuel industries.

Hardcover 450 pages 2009 ISBN 978-0-470-11485-8 USD $99.95/CAD $119.95/£66.95/€84.90

Online Book. *See page 8 for more information.* **ISBN 978-0-470-47341-2**



Wiley Guide to Chemical Incompatibilities

new

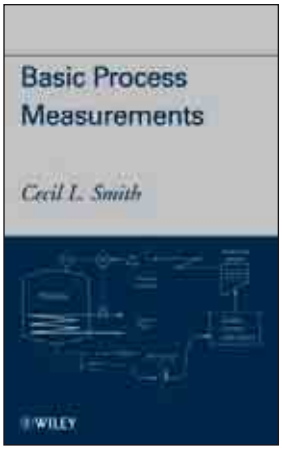
THIRD EDITION

Richard P. Pohanish, Stanley A. Greene

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 in-compatibility 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 1040 pages 2009 ISBN 978-0-470-38763-4 USD $160.00/CAD $192.00/£107.00/€139.00

Online Book. *See page 8 for more information.* **ISBN 978-0-470-52331-5**



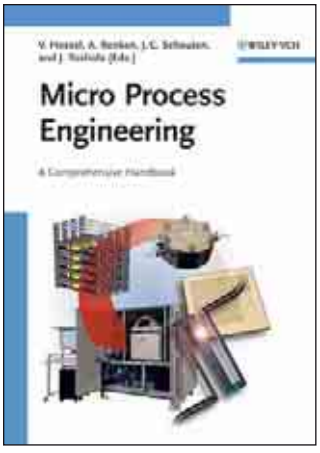
Basic Process Measurements

new

Cecil Smith

This book examines the basic principles for the various approaches used in selecting industrial devices, including: incorporation into commercial measurement devices, suitability within certain process conditions, and advantages/disadvantages relative to competing technologies. This important resource also details the process conditions for which measurement devices are suitable, and when they should not be applied, and enumerates the advantages and disadvantages of one technology versus another from a process perspective. It explains the principles on which each measurement technology is based, emphasizing those aspects that make each measurement device appropriate for some process applications but not for others.

Hardcover 360 pages 2009 ISBN 978-0-470-38024-6 USD $89.95/CAD $107.95/£60.50/€67.90



Micro Process Engineering

new

A Comprehensive Handbook

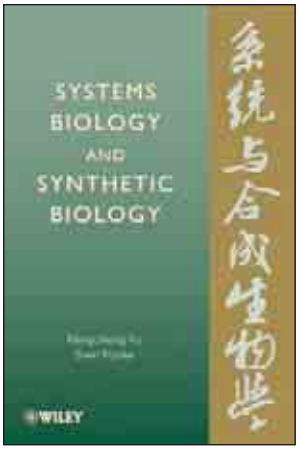
THREE-VOLUME SET

Volker Hessel, *IMM Institut für Mikrotechnik Mainz, Germany;* Albert Renken, *École Polytechnique Fédérale, Switzerland;* Jaap C. Schouten, *Einhoven Univ. of Technology, The Netherlands;* Jun-ichi Yoshida, *Kyoto Univ. Japan;* Editors

Synthesis performed on a miniature scale has led to the demand for more complex systems to allow smaller batch production. The first comprehensive reference work to span this entire field, *Micro Process Engineering* explains the fundamentals, application, and engineering of micro reactors. This three-volume handbook provides an overview of the key aspects of micro process engineering.

- Volume 1 covers fluid dynamics, mixing, heat/mass transfer, purification and separation microstructured devices, and microstructured reactors.
- Volume 2 covers segments microreactor design, fabrication and assembly, bulk and fine chemistry, polymerization, fuel processing, and functional materials.
- Volume 3 of the handbook addresses microreactor systems design and scale-up, sensing, analysis and control, chemical process engineering, economic and eco-efficiency analyses as well as microreactor plant case studies.

Hardcover 1412 pages 2009 ISBN 978-3-527-31550-5
USD $650.00/CAD $780.00/£340.00/€499.00



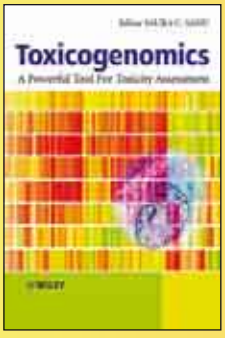
Systems Biology and Synthetic Biology

new

Pengcheng Fu, Sven Panke

The genomic revolution has opened up systematic investigations and engineering designs for various life forms. Systems biology and synthetic biology are emerging as two complementary approaches, which embody the breakthrough in biology and invite application of engineering principles. *Systems Biology and Synthetic Biology* emphasizes the similarity between biology and engineering at the system level, which is important for applying systems and engineering theories to biology problems. It demonstrates to students, researchers, and industry that systems biology relies on synthetic biology technologies to study biological systems, while synthetic biology depends on knowledge obtained from systems biology approaches.

Hardcover 658 pages 2009 ISBN 978-0-471-76778-7 USD $150.00/CAD $180.00/£100.00/€129.00
Online Book. *See page 8 for more information.* **ISBN 978-0-470-43798-8**



Toxicogenomics

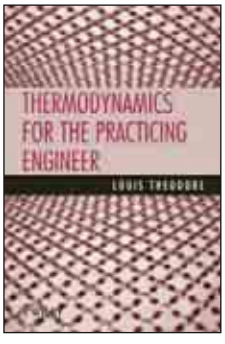
new

A Powerful Tool for Toxicity Assessment

Saura Sahu, *US Food and Drug Administration, Editor*

Toxicogenomics delivers up-to-date state-of-the-art information presented by recognized experts, and so serves as an authoritative source of current knowledge in this field of research. The potential link between toxicology, genetics and human diseases makes this book very useful to investigators in many and varied disciplines of science and toxicology. A sampling of the many topics covered include mechanistic toxicogenomics, sources of variability in toxicogenomic assays, the analysis and interpretation of toxicogenomic data, and design issues in toxicogenomics studies.

Hardcover 422 pages 2008 ISBN 978-0-470-51823-6 USD $190.00/CAD $228.00/£95.00/€129.00
Online Book. *See page 8 for more information.* **ISBN 978-0-470-69963-8**

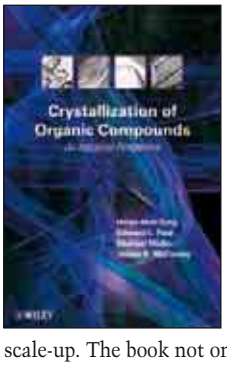


Thermodynamics for the Practicing Engineer

Louis Theodore, *Manhattan College, USA*

Eschewing theory in favor of applications, this practical how-to is the perfect starting place for those looking to familiarize themselves with the basics of thermodynamics. As such, it addresses both technical and pragmatic problems in the field, and covers such topics as enthalpy effects, equilibrium thermodynamics, non-ideal thermodynamics, and energy conversion applications. You'll develop a working knowledge of the principles of thermodynamics, as well as experience in their application. *Introduction to Chemical Engineering Thermodynamics* stands alone as an easy-to-follow, self-teaching guide to the practical applications you want to learn.

Hardcover 384 pages 2009 ISBN 978-0-470-44468-9 USD $110.00/CAD $132.00/£73.50/€94.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-45159-5**



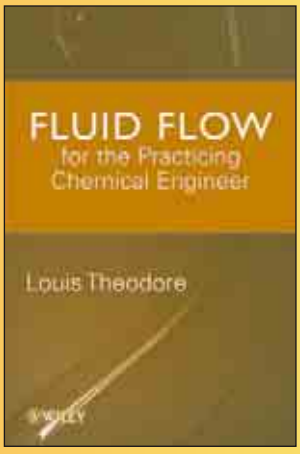
Crystallization of Organic Compounds

An Industrial Perspective

Hsien-Hsin Tung, Edward L. Paul Michael Midler, James A. McCauley

Crystallization of Organic Compounds guides readers through the practical aspects of crystallization. It uses plenty of case studies and examples of crystallization processes, ranging from development through manufacturing scale-up. The book not only emphasizes strategies that have been proven successful, it also helps readers avoid common pitfalls that can render standard procedures unsuccessful. With its focus on industrial applications, this book is recommended for chemical engineers and chemists who are involved with the development, scale-up, or operation of crystallization processes in the pharmaceutical and fine chemical industries.

Hardcover 300 pages 2009 ISBN 978-0-471-46780-9 USD $99.95/CAD $119.95/£66.95/€84.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-44779-6**

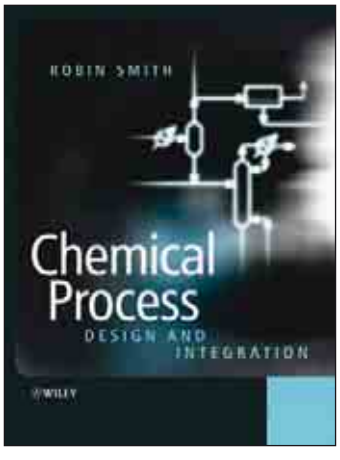


Fluid Flow for the Practicing Chemical Engineer

Louis Theodore, *Manhattan College*

Fluid Flow for the Practicing Chemical Engineer helps readers move comfortably from fluid flow principles to fluid flow applications. From elementary flow mechanics to the law of conservation of mass, energy, and momentum, the book covers all the basic principles of fluid flow. The book also demonstrates how these principles underlie a broad range of applications, from laminar flow to filtration and ventilization. Lastly, the book explores special related topics, including environmental concerns, biomedical engineering, open-ended problems, and the economics of fluid flow applications.

Hardcover 576 pages 2009 ISBN 978-0-470-31763-1
USD $110.00/CAD $132.00/£73.50/€94.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-42385-1**



Chemical Process

best seller

Design and Integration

Robin M. Smith, *UMIST, UK*

This book deals with the design and integration of chemical processes, emphasizing the conceptual issues that are fundamental to the creation of the process. Chemical process design requires the selection of a series of processing steps and their integration to form a complete manufacturing system. The text emphasizes both the design and selection of the steps as individual operations and their integration. The design of utility systems has been dealt with in the text so that the interactions between processes and the utility system and interactions between different processes through the utility system can be exploited to maximize the performance of the site as a whole.

Paperback 712 pages 2005 ISBN 978-0-471-48681-7
USD $85.00/CAD $101.99/£45.00/€57.90

Lawsuit!

best seller

Reducing the Risk of Product Liability for Manufacturers

Randall L. Goodden

Reduce your exposure to civil lawsuits. Addressing product liability and laws in both the U.S. and internationally, this book helps product manufacturers and engineers develop and implement proactive processes that can reduce liability concerns and potential lawsuits. It discusses preventive measures in the engineering, development, and manufacturing of products and explains the procedures and processes manufacturers must have in place to reduce the likelihood of liability—as well as to provide the best defense in case of a lawsuit.

Hardcover 359 pages 2009 ISBN 978-0-470-17797-6 USD $79.95/CAD $95.95/£53.50/€67.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-41483-5**

Introduction to Chemical Engineering Computing

best seller

Bruce A. Finlayson

Perfect for students and professionals, *Introduction to Chemical Engineering Computing* gives readers the professional tools they need to solve real-world problems involving:

- Equations of state
- Vapor-liquid and chemical reaction equilibria
- Mass balances with recycle streams
- Mass transfer equipment
- Process simulation
- Chemical reactors
- Transfer processes in 1D
- Fluid flow in 2D and 3D
- Convective diffusion equations in 2D and 3D.

Paperback 360 pages 2006 ISBN 978-0-471-74062-9 USD $64.95/CAD $77.99/£43.50/€54.90
Online Book. *See page 8 for more information.* **ISBN 978-0-471-77668-0**

Membrane Technology and Applications

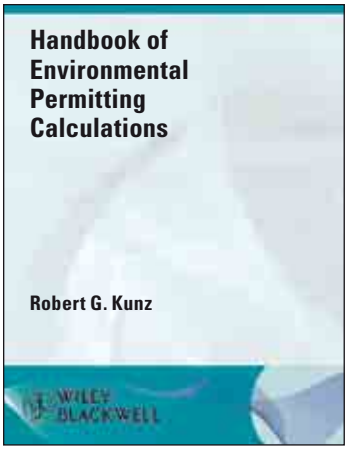
best seller

SECOND EDITION

Richard Baker, *Membrane Technology and Research, Inc., USA*

Simply stated, *Membrane Technology and Applications* is the most authoritative overview available today of separation membranes, their theoretical underpinnings, manufacture, and use. And this second edition has been fully revised and expanded to provide comprehensive, up-to-the-minute coverage of the latest developments in the field. The first four chapters cover the basics of membrane science, including transport theory, membrane and module preparation, and concentration polarization. Thereafter each major membrane application—including reverse osmosis, ultrafiltration, microfiltration, gas separation, pervaporation, and electrodialysis—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 552 pages 2004 ISBN 978-0-470-85445-7 USD $130.00/CAD $155.99/£65.00/€82.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-02039-5**



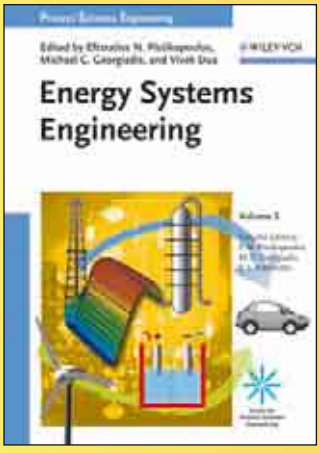
Handbook of Environmental Permitting Calculations

new

Robert G. Kunz

The *Handbook of Environmental Permitting Calculations* assists chemical engineers in calculating environmental factors necessary to apply for environmental permits. It provides not just explanations, but examples of complex chemical equations to assist with environmental permit calculations. It centralizes a broad range of environmental information in a single volume—from wastewater to radioactive decay—deeming it useful to both industrialists and regulators. This essential resource focuses on the technical side of permits, not just regulatory specifics, making it especially useful in developing countries where environmental control efforts are just getting started.

Hardcover 740 pages 2009 ISBN 978-0-470-13985-1 USD $120.00/CAD $144.00/£80.50/€99.90



Energy Systems Engineering

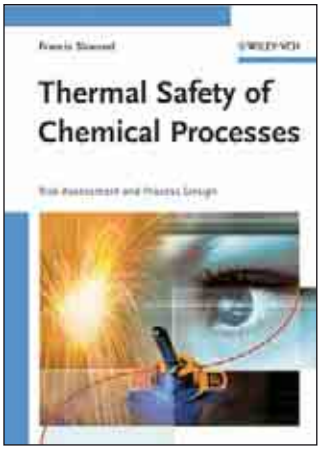
Process Systems Engineering

VOLUME FIVE

Efstratios Pistikopoulos, Michael Georgiadis, *both of Imperial College London, UK;* Eustathios S. Kikkinides, *Univ. of Western Macedonia, Greece;* Editors

This fifth volume in the series is the first comprehensive source on energy systems engineering for the process industries. It combines key contributions from leading research groups to form a single source of vital information otherwise dispersed among specialized journals. Inspired by the leading authority in the field, the Centre for Process Systems Engineering at Imperial College London, this interdisciplinary work explores new technologies of sustainable energy sources and their optimization as energy sufficient systems. The innovative technologies thus covered are crucial for the continued growth of already established multi-billion-dollar commercial markets: oil and gas, petrochemicals, pharmaceuticals and fine chemicals, food and beverage, and consumer goods.

Hardcover 348 pages 2008 ISBN 978-3-527-31694-6 USD $200.00/CAD $240.00/£120.00/€139.00



Thermal Safety of Chemical Processes

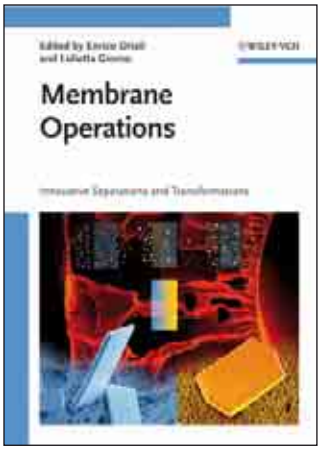
Risk Assessment and Process Design

Francis Stoessel, *Swiss Institute for the Promotion of Safety and Security, Switzerland*

"This book should not be missing from the library collections of each chemical engineer or student preparing for this profession."
—Environmental Engineering and Management Journal

Based on the author's many years of experience in teaching and practicing safety assessment in industry, this book presents proven methods for conducting a systematic assessment of risks due to potential loss of control over chemical reactions and for the prevention of runaway reactions on an industrial scale. Part one of the book looks at the general aspects of thermal process safety, while part two deals with mastering exothermal reactions. The final section discusses the avoidance of secondary, decomposition reactions, with methods given for their characterization in terms of consequences and triggering conditions.

Hardcover 393 pages 2008 ISBN 978-3-527-31712-7 USD $145.00/CAD $173.99/£85.00/€99.00
Online Book. *See page 8 for more information.* **ISBN 978-3-527-62160-6**



Membrane Operations

new

Innovative Separations and Transformations

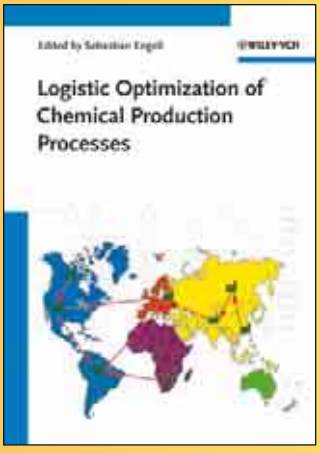
Enrico Drioli, Lidietta Giorno, *both of Univ. of Calabria, Italy;* Editors

Here is the only book dedicated to membrane technology, covering all the different innovative membrane areas from separation to contactors, and regarding them as unit operations in process engineering. The specific potential of these advanced new operations is analyzed by different experts in the field, with regard to their basic aspects and in particular to their potential application for a sustainable growth and improvement in the quality of life. To this end, much emphasis is placed on the role of membrane engineering as a dominant technology in such areas as water desalination or artificial organs.

Topics considered in detail include:

- membranes in fuel cells
- membranes in MEMS and OLEDS
- as well as integrated membrane systems.

Hardcover 578 pages 2009 ISBN 978-3-527-32038-7 USD $245.00/CAD $294.00/£145.00/€169.00



Logistic Optimization of Chemical Production Processes

Sebastian Engell, *Univ. of Dortmund, Germany,* Editor

In this first book dedicated to the logistics of chemical plants and production processes, authors from academia and industry—including Bayer, Degussa, and Merck—provide an overview of the field, incorporating knowledge and experience gathered over the last 10 years. In so doing, they describe the latest ideas on efficient design, explaining when to produce which part of the equipment and with which resources in order to optimize chemical plants for high capacity and flexibility. Alongside the fundamentals, tools, algorithms, and integration issues, the book features five significant industrial case studies.

Hardcover 298 pages 2008 ISBN 978-3-527-30830-9 USD $290.00/CAD $348.00/£170.00/€199.00

Online Book. *See page 8 for more information.* **ISBN 978-3-527-62277-1**

Self-Assembly and Nanotechnology

A Force Balance Approach

Yoon S. Lee

A practical, enlightening overview and explanation of self-assembly and nanotechnology, *Self-Assembly and Nanotechnology: A Force Balance Approach*:

- Explores a variety of materials and situations in which self-assembly nanotechnology is becoming increasingly important
- Addresses the critical junction of two important fields: self-assembly and nanotechnology, with seven chapters on each field
- Bridges the topics of self-assembly, colloids, and surfaces with nanotechnology
- Approaches self-assembly, nanotechnology, and related topics with one unified concept—force balance
- Provides a concise and conceptual description of the fundamental forces involved in both self-assembly and nanotechnology
- Includes clear schematic illustrations to represent the principles
- Integrates recent discoveries and findings.

Hardcover 344 pages 2008 ISBN 978-0-470-24883-6 USD $105.00/CAD $125.99/£70.50/€89.90

Online Book. *See page 8 for more information.* **ISBN 978-0-470-29252-5**

Rules of Thumb in Engineering Practice

Donald R. Woods, *McMaster Univ., Hamilton, Canada*

A handy, concise reference that lets you swiftly identify and eliminate the causes of hundreds of equipment and process problems. These rules of thumb stem from the immense knowledge of experienced engineers collected and compiled by the author, who is an engineer himself. For each piece of equipment, this sourcebook lists five important aspects: area of application, sizing guidelines, capital cost, including difficult-to-find installation factors, principles of good practice, and solid approaches to troubleshooting. Consistent terminology and SI units are used throughout the book, while a detailed index quickly and reliably directs engineers in their everyday work.

Hardcover 479 pages 2007 ISBN 978-3-527-31220-7 USD $130.00/CAD $155.99/£80.00/€89.00

Online Book. *See page 8 for more information.* **ISBN 978-3-527-61111-9**

Process Engineering Problem Solving

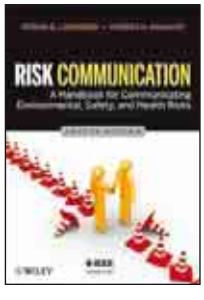
Avoiding "The Problem Went Away, But It Came Back" Syndrome

J. M. Bonem

In many modern plants, lots of time and money is spent addressing recurring problems. This guide gives you a structured, practical, and pragmatic way to solve real-world plant process problems, focusing on those that tend to be chronic or that require an engineering analysis. *Process Engineering Problem Solving* presents an approach that emphasizes the classical problem solving approach (defining the sequence of events) with the addition of the steps of formulating a theoretically correct working hypothesis, providing means to test the hypothesis and to eliminate the problem.

Hardcover 284 pages 2008 ISBN 978-0-470-16928-5 USD $89.95/CAD $107.95/£60.50/€77.90

Online Book. *See page 8 for more information.* **ISBN 978-0-470-37806-9**



Risk Communication

new

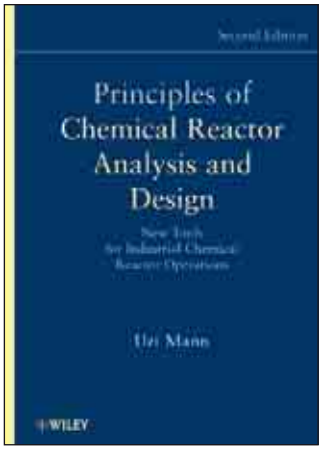
A Handbook for Communicating Environmental, Safety, and Health Risks

R. Lundgren, Andrea McMakin

When health, safety, or environmental risks take center stage, communicating risk information can be a daunting challenge. Readers will benefit from the contemporary, practical advice offered here on what to do—and what to avoid—for successful risk communication. Outstanding features include the melding of scientific research with hands-on advice from risk practitioners. Now in it's fourth edition, this esteemed work is a valuable introduction to the field for novices as well as a refresher and reference for seasoned practitioners.

Paperback 376 pages 2009 ISBN 978-0-470-41689-1 USD $79.95/CAD $95.95/£53.50/€67.90

Online Book. *See page 8 for more information.* **ISBN 978-0-470-48012-0**



Principles of Chemical Reactor Analysis and Design

new

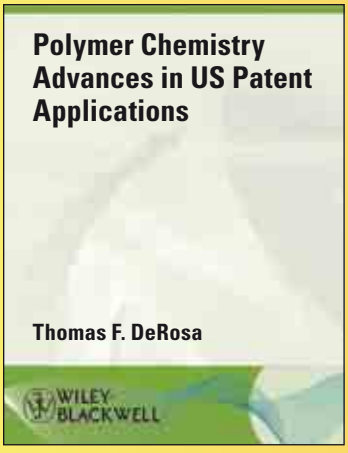
New Tools for Industrial Chemical Reactor Operations

SECOND EDITION

Uzi Mann, *Texas Tech Univ., USA*

This new methodology in reactor design accommodates the trend toward industrial applications with multiple applications. *Principles of Chemical Reactor Analysis and Design* gives readers the capability to formulate the design of any reactor configuration with any number of chemical reactions having any stoichiometry and any form of rate expression. It includes a framework for new economic-based optimization tools for chemical reactor operations and for analyzing integrated chemical processes. It provides engineering students and practitioners with the tools needed to handle contemporary industrial reactor operations, new design capabilities, and the framework for new economic-based optimization.

Hardcover 460 pages 2009 ISBN 978-0-471-26180-3 USD $89.95/CAD $107.95/£60.50/€77.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-38582-1**



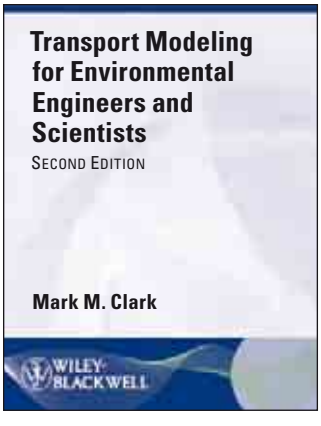
Polymer Chemistry Advances in US Patent Applications

new

Thomas F. DeRosa

Covering patent literature and process improvements in 22 polymer subject areas, this book provides researchers with current polymer research not yet published in journals or patents. Moreover, the review and analysis by the author provides a more thorough understanding and concise package of the patent application. It offers a reference that ranges from monomer preparation to polymer characterization and properties. *Polymer Chemistry Advances in US Patent Applications* provides a practical approach for readers to identify research and market trends, and stay up to date on current developments in the field.

Hardcover 782 pages 2009 ISBN 978-0-470-47228-6 USD $175.00/CAD $210.00/£117.00/€149.00
Online Book. *See page 8 for more information.* **ISBN 978-0-470-50731-5**



Transport Modeling for Environmental Engineers and Scientists

new

SECOND EDITION

Mark M. Clark, *Univ. of Illinois at Urbana-Champaign, USA*

Extensively updated to include advances in the field, this classic guide unites principles of transport phenomena with environmental processes. It covers the fundamentals of mass and momentum transport processes, emphasizing aerosol and colloidal systems. New developments in biotechnology, nanotechnology, indoor air quality, micropollutants, and membranes are also discussed. It has an environmental focus on sedimentation, coagulation, adsorption, filtration, dispersion, chromatography, and porous media transport. With numerous problems and examples, this is the premier reference for environmental engineers, civil engineers, chemical engineers, and professors and students in these fields.

Hardcover 664 pages 2009 ISBN 978-0-470-26072-2 USD $125.00/CAD $150.00/£83.50/€109.00

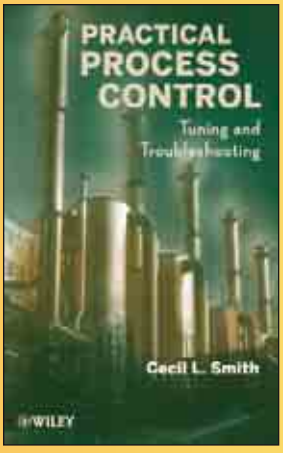
Air Pollution Control Equipment Calculations

Louis Theodore, *Manhattan College, USA*

"A detailed publication with technical data abound, this book is both a textbook for engineering students and a reference for engineers and technicians."
—Environmentalist

Air Pollution Control Equipment Calculations familiarizes readers with the basic design principles of air pollution equipment and their applications. Each chapter contains problems dealing with performance equations, operation, maintenance, and recent developments. The problems are arranged from least to most difficult and designed to afford readers a better understanding of the factors that affect the design, operation, and performance of a wide variety of air pollution control equipment incorporating both gaseous and particulate control technology.

Hardcover 574 pages 2008 ISBN 978-0-470-20967-7 USD $125.00/CAD $150.00/£83.50/€109.00
Online Book. *See page 8 for more information.* **ISBN 978-0-470-25577-3**



Practical Process Control

new

Tuning and Troubleshooting

Cecil Smith

Practical Process Control shows you how to analyze and troubleshoot process control systems in process manufacturing plants. Easy to read and understand, the book stresses practical solutions that don't require complex mathematics. It offers several advantages that you won't find in comparable texts. For example, the presentation is totally in the time domain—the word "Laplace" is nowhere to be found. In addition, the focus of the book is troubleshooting, not tuning. The author effectively demonstrates why tuning difficulties are almost always symptoms of other problems. By showing you how to recognize the clues, identify the root causes of the problem, and make needed corrections, you'll learn how to effectively troubleshoot problems before they mushroom into disasters. Filled with real-world examples, the book enables engineers to easily implement the author's troubleshooting guidelines in order to ensure that their plants operate safely, efficiently, and economically.

Hardcover 431 pages 2009 ISBN 978-0-470-38193-9 USD $99.95/CAD $119.95/£66.95/€84.90

Online Book. *See this page for more information.* **ISBN 978-0-470-43148-1**

Membranes in Clean Technologies

2 volume set

Theory and Practice

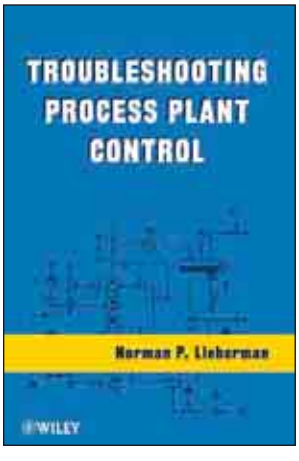
TWO-VOLUME SET

Andrzej Benedykt Koltuniewicz, *Wroclaw Univ. of Technology, Poland;* Enrico Drioli, *Univ. of Calabria, Italy;* Editors

". . . a practical 'how to do' guide for either reengineering existing technologies or implementing innovative processes, including over 6,000 pertinent references."
—Environmental Engineering and Management Journal

This guide shows you how to reengineer existing technologies and implement innovative processes. Following an introduction to the development of clean technology concepts, the first volume looks at the theory and engineering of membrane processes. The second deals with membranes in such industries as water, textiles, paper, pharmaceuticals, and food. Included is an examination of materials management, including metals, acids, and hydrocarbons separations. An appendix lists membrane manufacturers and also lists toxic, harmful, and prohibited substances.

Hardcover 909 pages 2008 ISBN 978-3-527-32007-3 USD $360.00/CAD $431.99/£255.00/€299.00



Troubleshooting Process Plant Control

Norman Lieberman

The book focuses on process control in the petroleum and refinery industries, with an emphasis on problem solving. The author explores various real-life examples and relays the lessons learned from his career in this area. He explains many new yet straightforward concepts without the use of complex mathematics. This handy go-to emphasizes single and well-established process engineering principles that will help working engineers and operators switch manual control loops to automatic control.

Troubleshooting Process Plant Control is:

- Written for the working operator and engineer, with straightforward instruction not hinged on complex math
- Based on a career of solving process control problems
- Filled with real-life examples of problems that commonly arise and how to fix them.

Hardcover 242 pages 2008 ISBN 978-0-470-42514-5 USD $74.95/CAD $89.95/£50.50/€64.90

Online Book. *See this page for more information.* **ISBN 978-0-470-43225-9**

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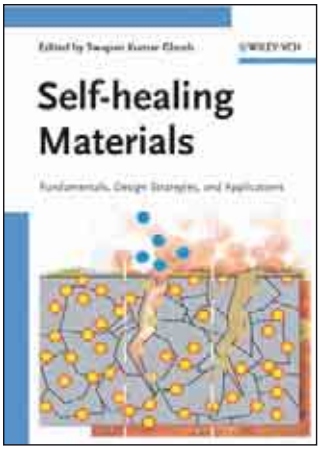


Self-healing Materials

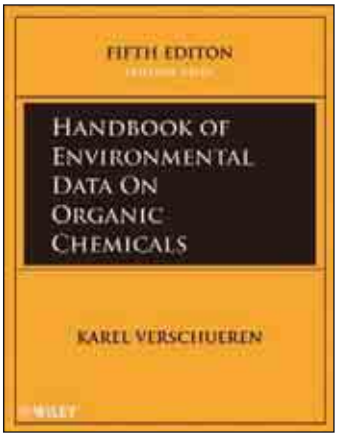
new

Fundamentals, Design Strategies, and Applications

Swapan Kumar Ghosh, *Ocas N.V. Zelzate;* Edito

Take yourself to the forefront of research wherein artificially created materials are designed to affect the self-healing attributes of natural elements. This book covers self-healing concepts for all important material classes and their applications: polymers, ceramics, non-metallic and metallic coatings, alloys, nanocomposites, concretes and cements, as well as ionomers. It explains the strategies and mechanisms necessary to develop a basic understanding of the science, then covers different material classes and suitable self-healing concepts, giving examples for their application in practical situations.

Hardcover 306 pages 2009 ISBN 978-3-527-31829-2 USD $175.00/CAD $210.00/£105.00/€119.00



Handbook of Environmental Data on Organic Chemicals

FOUR-VOLUME SET

FIFTH EDITION

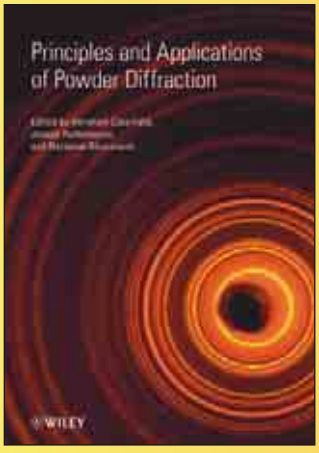
Karel Verschueren, *IMdMICON Environmental Consultancy and Services, A Heidemij Company*

Arranged in alphabetical order by chemical name and containing all the information needed to use potentially dangerous chemicals prudently, this important reference:

- Covers natural and man-made sources of a substance, as well as its uses and various formulations
- Categorizes each substance by physical and chemical properties, air pollution factors, water and soil pollution factors, and biological effects
- Investigates in detail pesticides, detergents, phtalates, polynuclear aromatics, and polychlorinated biphenyls
- Features information on aquatic toxicity and biological effects, odor thresholds, sampling and analysis data, and structural formulas of over 3,000 chemicals and includes refined tables to focus on environmentally related materials.

Hardcover 4486 pages 2008 ISBN 978-0-470-17172-1 USD $695.00/CAD $954.00/£468.00/€599.00

CD-ROM 2009 ISBN 978-0-470-17174-5 USD $695.00/CAD $834.00/£409.00/€669.00

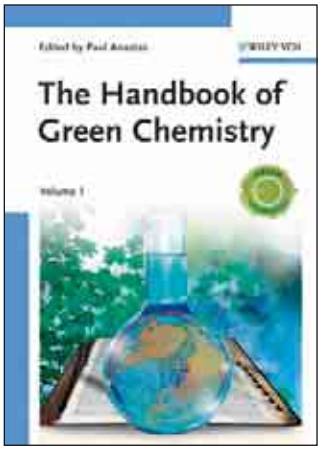


Principles and Applications of Powder Diffraction

Abraham Clearfield, Joseph Reibenspies, Nattamai Bhuvanesh, *all of Texas A & M Univ., USA;* Editors

Powder diffraction is one of the primary techniques used to characterize materials, providing structural information even when the crystallite size is too small for single crystal x-ray diffraction methods. There has been a significant increase in the application of powder diffraction in recent years, both in research and manufacturing, fuelled by improved instrumentation, data processing, and awareness of the information that can be obtained. *Principles and Applications of Powder Diffraction* provides a concise introduction to modern powder diffraction methods with particular emphasis on practical aspects. It covers the background theory of diffraction in a form approachable by those with an undergraduate degree.

Hardcover 400 pages 2008 ISBN 978-1-4051-6222-7 USD $170.00/CAD $204.00/£90.00/€115.00



Handbook of Green Chemistry - Green Catalysis

THREE-VOLUME SET

Paul T. Anastas, *Green Chemistry Institute, USA;* Robert H. Crabtree, Yale University, *USA,* Editors

In a world where the emphasis has shifted to being as green and environmentally friendly as possible, this important part of the 3-volume *Handbook of Green Chemistry,* edited by Professor Paul Anastas, proves essential reading for anyone wishing to gain an understanding of the world of green chemistry. This series summarizes the significant body of work that has accumulated over the past decade that details the breakthroughs, innovation and creativity within Green Chemistry and Engineering. Co-edited by the well-known chemist, Professor Robert Crabtree, never before has the subject of green catalysis been so thoroughly covered. Set 1 comprises of 3 books, with each volume focusing on a different area; Homogeneous Catalysis, Heterogeneous Catalysis, and Biocatalysis.

Hardcover 1082 pages 2009 ISBN 978-3-527-31577-2 USD $572.50/CAD $687.50/£297.50/€499.00

WILEY and American Institute of Chemical Engineers (AIChE): Partners In Publishing

Since January 2004, Wiley has published the Institute's three flagship journals—*Environmental Progress, Process Safety Progress,* and the *AIChE Journal.* In April 2005, Wiley's relationship with the AIChE grew to also include developing and publishing books in the fields of chemical engineering and industrial chemistry under a new, co-branded imprint (Wiley-AIChE).

In 1985, AIChE established the Center for Chemical Process Safety (CCPS) to focus on engineering and management practices that help prevent and mitigate catastrophic process safety accidents. CCPS publications provide the latest guidelines for all those that produce, store, and handle flammable, explosive, and reactive materials. These publications are included within the Wiley-AIChE imprint.

To view a complete list of book publications under the Wiley-AIChE imprint, including a complete backlist of in-print CCPS titles, please visit us on the Web at **www.wiley.com/go/aiche.**

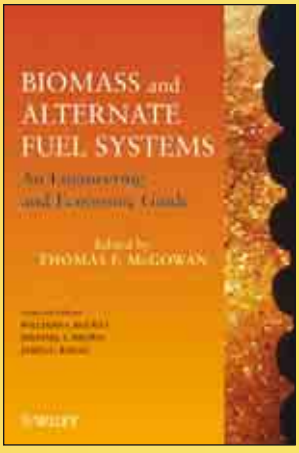
Continuous Monitoring for Hazardous Material Releases

new

Center for Chemical Process Safety (CCPS)

The important subject of catastrophic chemical releases is thoroughly covered in this ground-breaking text. Sensors must be able to identify leaks early in order to mitigate their consequences. Continuous sensor monitoring can detect catastrophic chemical releases early enough to curb extreme amounts of damage. *Continuous Monitoring for Hazardous Material Releases* provides guidance on the applicability, selection, placement, use, and maintenance of gas detection systems. Detailing strategic placement fixed gas detection systems, the book provides the technical background and guidance needed to get the most from this emerging technique.

Hardcover 86 pages 2009 ISBN 978-0-470-14890-7 USD $69.95/CAD $83.95/£46.95/€59.90



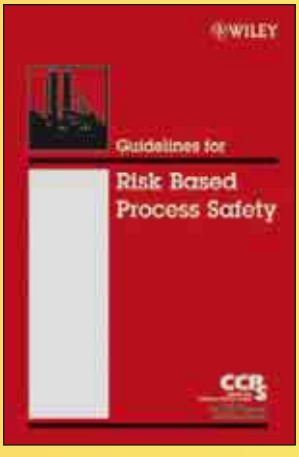
Biomass and Alternate Fuel Systems

An Engineering and Economical Guide

Thomas F. McGowan, Editor

Biomass and Alternate Fuel Systems explains characteristics of renewable fuels, especially biomass and wood, and the cost-effective and environment-friendly methods of handling, storing, and burning these fuels. It is complete with the economic evaluation method, introduction of the pollution control equipment for limiting the emission from fuel combustion, case studies, and costs and carbon emission comparisons between conventional and alternate fuels. Many case studies are introduced here too.

Hardcover 264 pages 2009 ISBN 978-0-470-41028-8 USD $89.95/CAD $107.95/£60.50/€77.90



Guidelines for Risk Based Process Safety

best seller

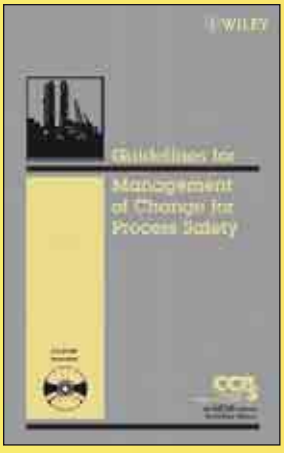
Center for Chemical Process Safety (CCPS)

". . . 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 lifecycle of a company.

Hardcover 768 pages 2007 ISBN 978-0-470-16569-0 USD $160.00/CAD $191.99/£107.00/€139.00



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 pages 2008 ISBN 978-0-470-04309-7
USD $94.95/$116.99/£63.50/€82.90

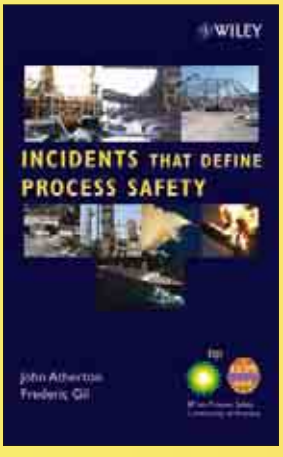
Guidelines for Chemical Transportation Safety, Security, and Risk

SECOND EDITION

Center for Chemical Process Safety (CCPS)

This handy guide outlines current transportation risk analysis software programs and demonstrates several available risk assessment programs for land transport by rail, truck, and pipeline for consequences that may affect the public or the environment. This new edition introduces possible transportation risk reduction techniques for consideration, including loading and unloading checklists for several transport modes. It develops specific operating procedures and checklists to reduce human error and discusses considerations for transportation security, including threat and vulnerability assessments and potential countermeasures. This book also discusses the Responsible Care Management System for Distribution and Security and the initiatives of member companies excelling in code commitment, and includes guidance on consultant selection when developing a transportation risk program.

Hardcover w/CD-ROM 166 pages 2008 ISBN 978-0-471-78242-1
USD $125.00/CAD $150.00/£83.50/€109.00



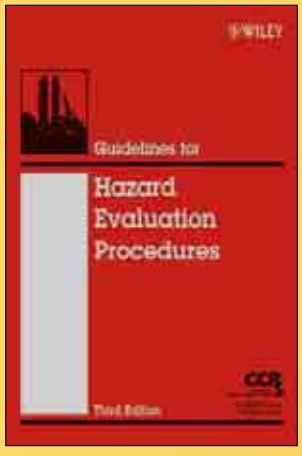
Incidents That Define Process Safety

best seller

Center for Chemical Process Safety (CCPS)

Apply lessons learned from major process and transportation incidents to improve process safety. *Incidents That Define Process Safety* describes approximately 50 incidents that have had a significant impact on the chemical and refining industries' approaches to modern process safety. Events are described in detail so you get a fundamental understanding of the root causes, the consequences, the lessons learned, and actions that can prevent a recurrence. There are exhaustive investigative reports about these events; the goal of this reference is to consolidate and archive concise information on representative incidents that are relevant today so readers can apply the resulting safety principles to their current operations. Presented to raise process safety awareness, to help readers learn from previous incidents, and to supplement established initiatives and materials, this book is a valuable reference for engineers and technicians involved in the design and operation of chemical and petroleum processing facilities, as well as managers and decision makers in these industries. It is also an enlightening supplement to many chemical engineering courses.

Hardcover 336 pages 2008 ISBN 978-0-470-12204-4 USD $94.95/CAD $113.99/£63.50/€82.90



Guidelines for Hazard Evaluation Procedures

best seller

THIRD EDITION

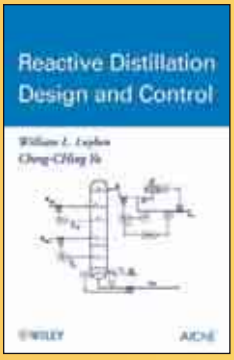
Center for Chemical Process Safety (CCPS)

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 and mechanical integrity and examples that speak to current process technology, management practices, and to contexts outside of chemical manufacturing and petroleum.

Includes:

- Almost 200 pages of worked examples
- Electronic spreadsheet tools to make the user's job easier
- References for further reading, along with charts and diagrams that reflect the latest views and information.

Hardcover w/CD-ROM 576 pages 2008 ISBN 978-0-471-97815-2
USD $125.00/CAD $149.99/£83.50/€109.00



Reactive Distillation Design and Control

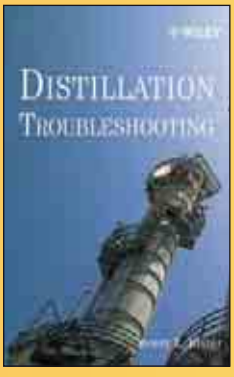
William L. Luyben, Cheng-Ching Yu

Reactive distillation is an economical and environmentally friendly procedure that combines distillation and chemical reaction into a single step. To address the increasing importance of reactive distillation in the petroleum and chemical industries, this book deals with the design of reactive distillation columns and their control systems in an integrated manner.

This invaluable resource also:

- Discusses how to maximize the economic and environmental benefits of using Reactive Distillation Technology
- Contains the rigorous analysis of reactive distillation systems using nonlinear steady-state and dynamic models
- Is written by a team with years of industry and research experience.

Hardcover 574 pages 2008 ISBN 978-0-470-22612-4 USD $130.00/CAD $156.00/£86.95/€109.00



Distillation Troubleshooting

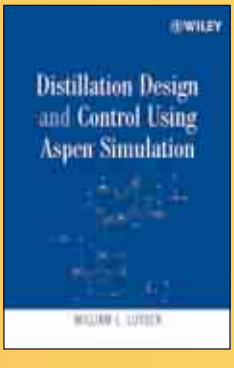
Henry Z. Kister

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 pages 2006 ISBN 978-0-471-46744-1 USD $120.00/CAD $143.99/£80.50/€99.90

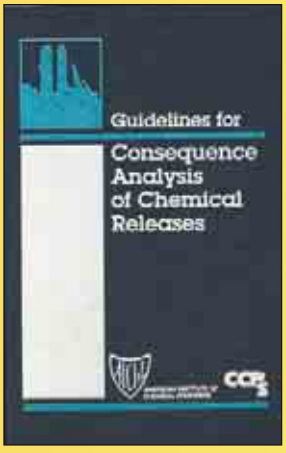


Distillation Design and Control Using Aspen™ Simulation

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.

Hardcover 360 pages 2006 ISBN 978-0-471-77888-2 USD $115.95/CAD $137.99/£76.95/€97.90



Guidelines for Consequence Analysis of Chemical Releases

Center for Chemical Process Safety (CCPS)

Guidelines for Consequence Analysis of Chemical Releases provides technical information on how to conduct a consequence analysis to satisfy your company's needs and the EPA rules. It covers quantifying the size of a release, dispersion of vapor clouds to an endpoint concentration, outcomes for various types of explosions and fires, and the effect of the release on people and structures. Each chapter includes a description of the topic along with background information and an abundance of examples.

Hardcover w/CD-ROM 324 pages 1995 ISBN 978-0-8169-0786-1
USD $165.00/CAD $170.99/£110.00/€139.00

Guidelines for Evaluating the Characteristics of Vapor Cloud Explosions, Flash Fires, and BLEVEs

Center for Chemical Process Safety (CCPS)

The serious consequences of vapor cloud explosions, flash fires, and BLEVEs are very well known. Better understanding of the characteristics of these phenomena and models to calculate their consequences are key to effective prevention and mitigation. Cited by EPA in its 1996 document, "Off-site Consequence Analysis Guidance," the first half of this book describes the characteristics of these phenomena and gives an overview of past experimental and theoretical research and methods to estimate consequences.

Hardcover 260 pages 1994 ISBN 978-0-8169-0474-7
USD $185.00/CAD $221.99/£123.00/€159.00

Guidelines for Fire Protection in Chemical, Petrochemical, and Hydrocarbon Processing Facilities

Center for Chemical Process Safety (CCPS)

While there are many resources available on fire protection and prevention in chemical petrochemical and petroleum plants—this is the first book that pulls them all together in one comprehensive resource. With *Guidelines for Fire Protection in Chemical, Petrochemical, and Hydrocarbon Processing Facilities* you'll get the tools to develop, implement, and integrate a fire protection program into your company or facility's Risk Management System. This definitive volume is a must read for loss prevention managers, site managers, project managers, engineers, and EHS professionals.

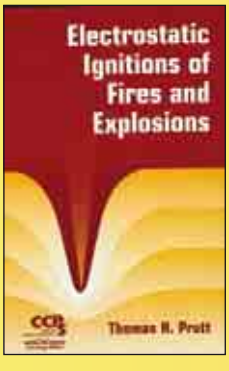
Hardcover w/CD-ROM 480 pages 2003 ISBN 978-0-8169-0898-1
USD $199.95/CAD $203.99/£133.00/€169.00

Guidelines for Evaluating Process Plant Buildings for External Explosions and Fires

Center for Chemical Process Safety (CCPS)

Though there are many industry practices for building design and siting, they do not always apply to all sectors of the industry, or ensure consistent levels of safety. This practical book, written by the same author as API Recommended Practice 752, provides the details to implement the recommended practice, "Management of Hazards Associated with Location of Process Plant Buildings." Its contents include safety guidelines on fire and explosion risks to process plant buildings as a result of events external to the building, which can apply across the spectrum of industries and to conditions at any site. This resource also offers guidance on assessing, screening, and managing risks associated with building design and siting.

Hardcover 189 pages 1996 ISBN 978-0-8169-0646-8 USD $155.00/CAD $185.99/£103.00/€135.00



Electrostatic Ignitions of Fires and Explosions

Thomas H. Pratt, *Burgoyne Incorporated, USA*

Written by a long-time process safety practitioner and lecturer in electrostatic safety, this book explains the basics of electrostatics. It offers a selected collection of information designed to give you the tools needed to examine the hazard potential of common industrial processes. Among the topics addressed are separation and accumulation of charge, discharge, minimum ignition energies, discharge energies, electrification in industrial processes, design and operating criteria, measurements and quantification of electrostatic scenarios. A selection of case histories helps illustrate sources of electrostatic ignition of combustibles and strategies for preventing such incidents.

Hardcover 200 pages 2000 ISBN 978-0-8169-9948-4 USD $99.95/CAD $119.99/£66.95/€84.90

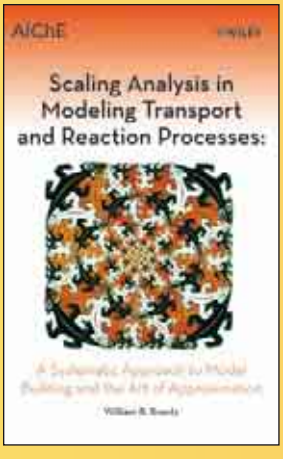
Advanced Membrane Technology and Applications

Norman N. Li, Editor

Membrane manufacturing processes are sensitive to operating conditions and raw material properties, making quality control a key concern in the industry. This book comprehensively covers the manufacturing and industrial applications of membranes, plus quality management and Six Sigma, along with membrane fundamentals. Considering future prospects and the strategically important issues in membrane technology as well, *Advanced Membrane Technology and Applications* is an excellent reference for professionals in industries such as water treatment, pharmaceuticals, and fuel cell processing.

Hardcover 994 pages 2008 ISBN 978-0-471-73167-2
USD $150.00/CAD $180.00/£100.00/€129.00

Online Book. *See page 8 for more information.* **ISBN 978-0-470-27628-0**



Scaling Analysis in Modeling Transport and Reaction Processes

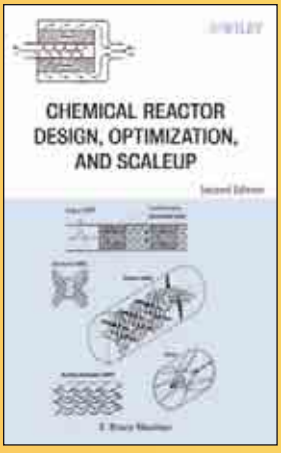
A Systematic Approach to Model Building and the Art of Approximation

William B. Krantz

Take the guesswork out of developing and using models. *Scaling Analysis in Modeling Transport and Reaction Processes* examines the valuable tool of systematic scaling analysis, serving readers across scientific disciplines who work on transport phenomena and reaction processes. This advanced work features chapters on the use of systematic scaling analysis in fluid dynamics, heat transfer, mass transfer, and reaction processes. It shows how models can be used to improve communication across different research areas of applied science (biology, chemistry, and physics). And it covers ideas otherwise dispersed in journal articles and includes instructive problems and solutions throughout.

Hardcover 529 pages 2007 ISBN 978-0-471-77261-3
USD $125.00/CAD $149.99/£83.50/€109.00

Online Book. *See page 8 for more information.* **ISBN 978-0-470-12193-1**



Chemical Reactor Design, Optimization, and Scaleup

SECOND EDITION

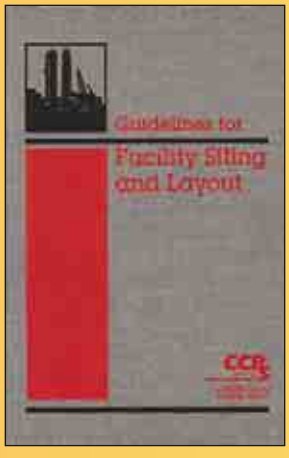
E. Bruce Nauman

This is the authoritative sourcebook 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
- Presents techniques for dealing with varying physical properties in reactors of all types and purposes
- 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
- Explains the method of false transients, a numerical solution technique.

Hardcover 608 pages 2008 ISBN 978-0-470-10525-2 USD $125.00/CAD $150.00/£83.50/€109.00
Online Book. *See page 8 for more information.* **ISBN 978-0-470-28207-6**



Guidelines for Facility Siting and Layout

best seller

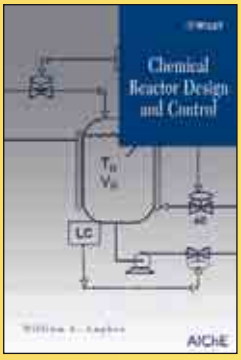
Center for Chemical Process Safety (CCPS)

A resource for individuals responsible for siting decisions, this guidelines book covers siting and layout of process plants, including both new and expanding facilities. This book provides comprehensive guidelines in selecting a site, recognizing and assessing long-term risks, and the optimal layout of equipment facilities needed within a site. The information presented is applicable to US and international locations.

Topics covered include:

- Preparation for the Site Selection Process
- Survey and Selection
- Plant Layout
- Equipment Layout and Spacing
- Case Histories.

Hardcover w/CD-ROM 198 pages 2003 ISBN 978-0-8169-0899-8
USD $165.00/CAD $197.99/£110.00/€139.00



Chemical Reactor Design and Control

William L. Luyben

"The book could be very useful to specialists in the field of chemical engineering; professionals who work with chemical reactors and students in training in reactor design, process control, and plant design." **—Environmental Engineering and Management Journal**

This unique reference shows readers how they can use process simulators such as Matlab and Aspen to optimize the designs of chemical reactors and their control systems. The approaches in this book stress the importance of process design and equipment on reactor control, while the authors emphasize the critical impact of steady-state design on the dynamics and stability of reactors.

Hardcover 419 pages 2007 ISBN 978-0-470-09770-0 USD $125.00/CAD $149.99/£83.50/€109.00
Online Book. *See page 8 for more information.* **ISBN 978-0-470-13491-7**

Guidelines for Investigating Chemical Process Incidents

SECOND EDITION

Center for Chemical Process Safety (CCPS)

This book provides a valuable reference tool for technical and management personnel who lead or are a part of incident investigation teams. This second edition focuses on investigating process-related incidents with real or potential catastrophic consequences. It presents on-the-job information, techniques, and examples that support successful investigations.

Hardcover w/CD-ROM 480 pages 2005 ISBN 978-0-8169-0897-4
USD $199.95/CAD $239.99/£133.00/€169.00

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.

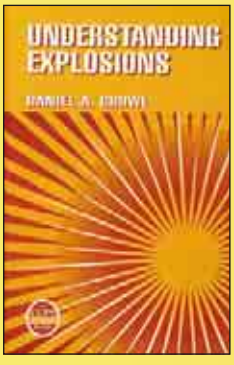
Hardcover w/CD-ROM 748 pages 1999 ISBN 978-0-8169-0720-5
USD $220.00/CAD $263.99/£147.00/€189.00

Safe Design and Operation of Process Vents and Emission Control Systems

Center for Chemical Process Safety (CCPS)

Based in real-life industrial experience, this resource provides design strategies to address flammability, explosive, and toxic hazards specific to process vent headers used for normal, emergency, and combined service. In addition, you'll gain insight into a thorough treatment of the hazardous phenomena—such as flammability limit variation, deflagration, pressure piling, and detonation—as well as comprehensive coverage of regulatory issues, design sequence, design strategies, and inherently safer approaches.

Hardcover 336 pages 2006 ISBN 978-0-471-79296-3 USD $115.00/CAD $137.99/£76.95/€97.90



Understanding Explosions

Daniel A. Crowl, *Michigan Technological Univ., USA*

Enhance your understanding of the nature of explosions and the practical methods required to prevent them from occurring. Gain insight into explosion fundamentals, including the different types, the explosive and flammable behavior of materials, and the hazards related to fires. In addition, you'll get methods to prevent and minimize the probability and consequence of an explosion during routine use of flammable, combustible, and/or reactive materials.

Hardcover 214 pages 2003 ISBN 978-0-8169-0779-3 USD $110.00/CAD $131.99/£73.50/€94.90

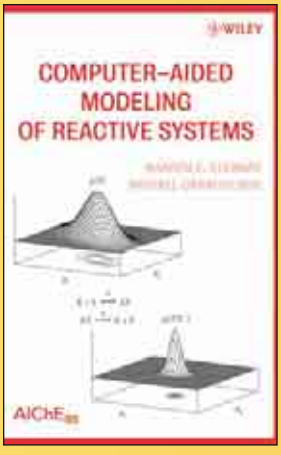
Guidelines for Engineering Design for Process Safety

best seller

Center for Chemical Process Safety (CCPS)

Inherently safer plants begin with the initial design. Here is where integrity and reliability can be built in at the lowest cost, and with maximum effectiveness. This book gives you practical insight into process safety issues in the design of chemical, petrochemical, and hydrocarbon processing facilities. You'll get tips on 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.

Hardcover 573 pages 1993 ISBN 978-0-8169-0565-2 USD $165.00/CAD $197.99/£110.00/€139.00



Computer-Aided Modeling of Reactive Systems

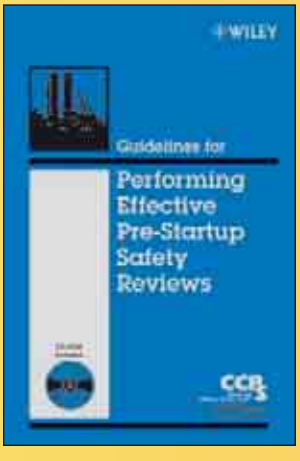
Warren E. Stewart, *Univ. of Wisconsin-Madison, USA;*
Michael Caracotsios, *UOP LLC, USA*

The book is a very useful tool . . . all presented in a very rigorous style."
—Computing Reviews

This book introduces readers to powerful parameter estimation and computational methods for modeling complex chemical reactions and reaction processes. It presents useful mathematical models, numerical methods for solving them, and statistical methods for testing and discriminating candidate models with experimental data. With an associated Website, learn to apply modeling and parameter estimation tools and strategies to chemical processes using your personal computer.

Topics covered include: chemical reaction models, chemical reactor models, probability and statistics, bayesian estimation, process modeling with single-response data, and process modeling with multi-response data.

Hardcover 268 pages 2008 ISBN 978-0-470-27495-8 USD $79.95/CAD $95.99/£53.50/€67.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-28203-8**



Guidelines for Performing Effective Pre-Startup Safety Reviews

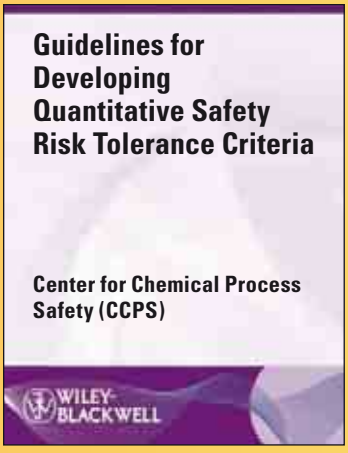
Center for Chemical Process Safety (CCPS)

A Pre-Startup Safety Review (PSSR) is the methodical analysis of a facility or operating unit to ensure no hazardous situations occur before operating a facility or plant. This book provides guidance to those having responsibility for scheduling and executing a PSSR by outlining a protocol and tool for use by project or turnaround teams to effectively and efficiently schedule and execute a PSSR.

The book contains:

- How-to checklists for hazard assessment
- Validation of resolutions
- New project turnover, including documentation and training in place
- Turnarounds both routine and emergency
- Batch and continuous processes
- Decommissioning.

Hardcover w/CD-ROM 192 pages 2007 ISBN 978-0-470-13403-0
USD $120.00/CAD $143.99/£80.50/€99.90



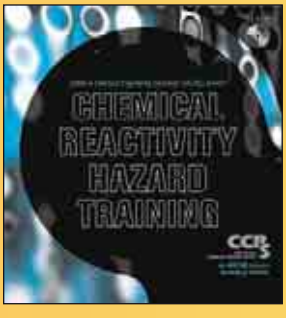
Guidelines for Developing Quantitative Safety Risk Tolerance Criteria

new

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 150 pages 2009 ISBN 978-0-470-26140-8 USD $59.95/CAD $71.95/£40.50/€52.90



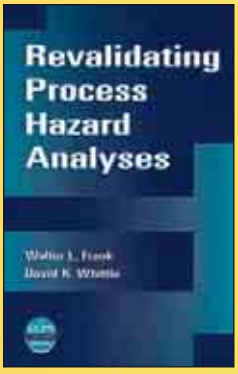
Chemical Reactivity Hazard Training CD-ROM

Center for Chemical Process Safety (CCPS)

Now you and your coworkers can learn to effectively avoid or contain hazardous chemical reactions. With approximately 100 instructional screens—including extensive links, graphics, videos, and supplemental slides—this timely, comprehensive CD serves both as a self-paced tutorial and an aid for lecture presentations. It clearly and succinctly demonstrates how uncontrolled industrial chemical reactions can lead to serious harm and introduces proven guidelines for avoiding unintended reactions. The module concludes with a 10-question information quiz. An extensive glossary and bibliography are directly accessible from any page within the product. *Chemical Reactivity Hazard Training*:

- Has approximately 100 instructional screens with extensive links, graphics, videos, and supplemental slides
- Shows how uncontrolled chemical reactions in industry can lead to serious harm and introduces key concepts for avoiding unintended reactions
- Includes case histories of important reactive chemical accidents.

CD-ROM ISBN 978-0-470-03664-8 2006
USD $285.00/CAD $291.99/£190.00/€269.00



Revalidating Process Hazard Analyses

best seller

Walter L. Frank, David K. Whittle, *both of EQE International, Inc.*

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.

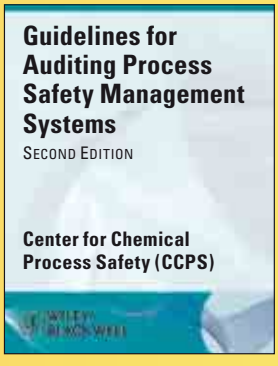
Hardcover 116 pages 2001 ISBN 978-0-8169-0830-1 USD $84.95/CAD $101.99/£56.95/€72.90

Avoiding Static Ignition Hazards in Chemical Operations

Laurence G. Britton

This resource addresses an area not extensively covered in process safety standards or literature: understanding and reducing potential hazards associated with static electricity. The book covers the nature of static electricity, characteristics and effective energies of different static resources, techniques for evaluating static electricity hazards, general bonding, grounding, and other techniques used to control static or prevent ignition, gases and liquids, powders, and hybrid mixtures.

Hardcover 282 pages 1999 ISBN 978-0-8169-0800-4 USD $115.00/CAD $137.99/£76.95/€97.90



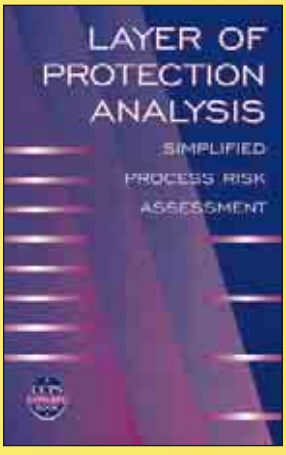
Guidelines for Auditing Process Safety Management Systems

SECOND EDITION

Center for Chemical Process Safety (CCPS)

This book discusses the fundamental skills, techniques, and tools of auditing, and the characteristics of a good process safety management system. A variety of approaches are given so that you can select the best methodology for a given audit. It also updates the original CCPS Auditing Guideline project since the implementation of OSHA PSM regulation and is accompanied by a CD featuring checklists for both the audit program and the audit itself.

Hardcover w/CD-ROM 250 pages 2010 ISBN 978-0-470-28235-9
USD $99.95/CAD $119.95/£66.95/€84.90



Layer of Protection Analysis

best seller

Simplified Process Risk Assessment

Center for Chemical Process Safety (CCPS)

Layer of protection analysis (LOPA) is a recently developed, simplified method of risk assessment that provides the much-needed middle ground between a qualitative process hazard analysis and a traditional, expensive quantitative risk analysis. Written by industry experts in LOPA, this pioneering book provides all the necessary information to undertake and complete a Layer of Protection Analysis during any stage in a processes' life cycle. Loaded with tables, charts, and examples, this book is invaluable to technical experts involved with ensuring the safety of a process. Because of its simplified, quicker risk assessment approach, LOPA is destined to become a widely used technique.

Hardcover 292 pages 2005 ISBN 978-0-8169-0811-0 USD $165.00/CAD $197.99/£110.00/€139.00

Guidelines for Pressure Relief and Effluent Handling Systems

Center for Chemical Process Safety (CCPS)

This comprehensive guide meets the need for information on selecting and sizing pressure relief devices and effluent handling systems that will maintain process integrity and avoid discharge of potentially harmful materials to the atmosphere.

Hardcover w/CD-ROM 540 pages 2005 ISBN 978-0-8169-0476-1
USD $235.00/CAD $281.99/£157.00/€199.00

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.

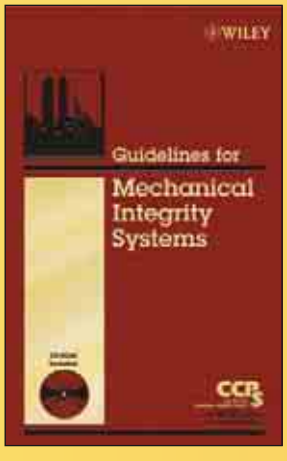
Hardcover 352 pages 1995 ISBN 978-0-8169-0627-7
USD $99.95/CAD $119.99/£66.95/€84.90

Guidelines for Safe and Reliable Instrumented Protective Systems

Center for Chemical Process Safety (CCPS)

This nuts-and-bolts guide establishes a framework for designing and running safe and reliable process engineering systems. It clarifies the essential role of process engineers, plant operators, and facility managers who are responsible for the safe and reliable design of these instrumented systems. By walking the reader through a project's life cycle—engineering, maintenance, and operations—the information found here lets users easily focus on their responsibilities and duties. The book uses the new IEC 61511 standard as a basis for the work processes used to achieve safe and reliable process operation. It also offers real-world case studies that demonstrate its advice in action and comes with a CD of examples with search and bookmark functions.

Hardcover 405 pages 2007 ISBN 978-0-471-97940-1 USD $135.00/CAD $161.99/£90.50/€115.00



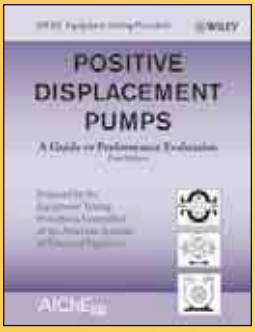
Guidelines for Mechanical Integrity Systems

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 pages 2006 ISBN 978-0-8169-0952-0
USD $130.00/CAD $155.99/£86.95/€109.00



Positive Displacement Pumps

A Guide to Performance Evaluation

AIChE

This is a current reference guide for positive displacement pumps for both traditional and state-of-the-art testing methods, and serves as a bridge between textbooks and manufacturer's literature by providing equipment testing practices based on technical know-how, practical experience, and academic theory. It not only is a resource guide to any engineer's task, but also adds important information to the overall literature of pump fundamentals and operating reliability.

Paperback 96 pages 2007 ISBN 978-0-470-18097-6 USD $44.95/CAD $53.99/£30.50/€39.90

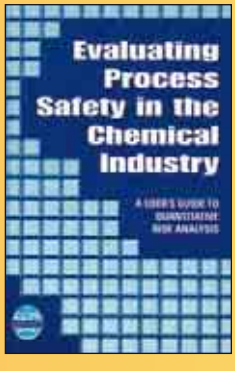
Identification of Cleaner Production Improvement Opportunities

Kenneth L. Mulholland

". . . a practical how-to manual for implementing the best pollution prevention strategies that are economical and efficient for eliminating costly end-of-pipe treatments."—**Chemical Engineering Progress**

Providing a step-by-step, how-to guide for implementing the best pollution prevention strategies, this book incorporates time-tested methods to work effectively and efficiently in eliminating pollution at its source during its industrial career.

Hardcover 200 pages 2006 ISBN 978-0-471-79440-0 USD $74.95/CAD $89.99/£50.50/€64.90



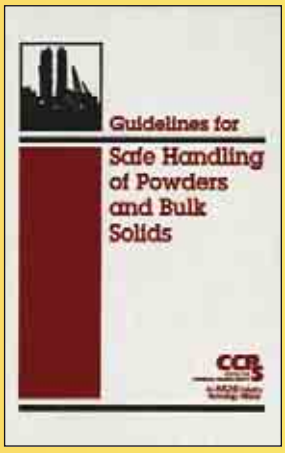
Evaluating Process Safety in the Chemical Industry

A User's Guide to Quantitative Risk Analysis

J. S. Arendt; D. K. Lorenzo, *EQE International, Inc.*

When Quantitative Risk Analysis is used appropriately, it provides a rational basis for evaluating process safety and comparing alternative safety improvements. This guide, an update of an earlier American Chemistry Council (ACC) publication, explains how managers and users can make better-informed decisions about QRA, and how plant engineers and process designers can better understand, interpret, and use the results of a QRA in their plant.

Hardcover 104 pages 2000 ISBN 978-0-8169-0746-5 USD $74.95/CAD $89.99/£50.50/€64.90



Guidelines for Safe Handling of Powders and Bulk Solids

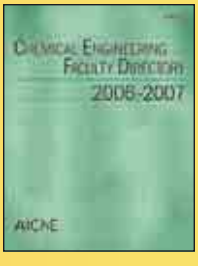
Center for Chemical Process Safety (CCPS)

This is your guide to better understanding the hazards that may exist at your facility. Substances that are practically inert in consolidated form may become quite hazardous when converted to powders and granules and present unique fire, explosion, and toxicity hazards. This CCPS guidelines book discusses the types of hazards that can occur in a wide range of process equipment and with a wide range of substances, and presents measures to address these hazards.

Covers topics such as:

- Particulate Hazards
- Accident Data and Case Histories
- Thermal and Shock Instability Scenarios
- Toxic Material Exposure Scenarios
- And much, much more.

Hardcover 796 pages 2005 ISBN 978-0-8169-0951-3 USD $140.00/CAD $142.99/£93.50/€119.00



Chemical Engineering Faculty Directory

2006-2007

S. Joe Qin, *Univ. of Texas, Austin*

This one-of-a-kind directory conveniently lists the contact information for chemical engineering faculty members, department heads, academic advisors, student organization advisors, and placement officers at over 450 universities worldwide.

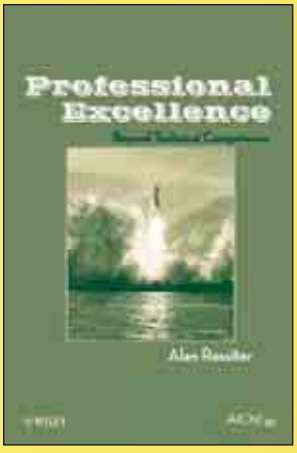
Paperback 266 pages 2007 ISBN 978-0-470-14782-5 USD $160.00/CAD $191.99/£107.00/€139.00

Guidelines for Implementing Process Safety Management Systems

Center for Chemical Process Safety (CCPS)

The causes of catastrophic accidents in the process industries, now recognized as complex and interrelated, need to be matched by multifaceted technical management systems. This book outlines the importance of getting managements commitment, defining goals, developing a plan, and developing specific PSM systems.

Hardcover 236 pages 1994 ISBN 978-0-8169-0590-4 USD $110.00/CAD $131.99/£73.50/€94.90



Professional Excellence

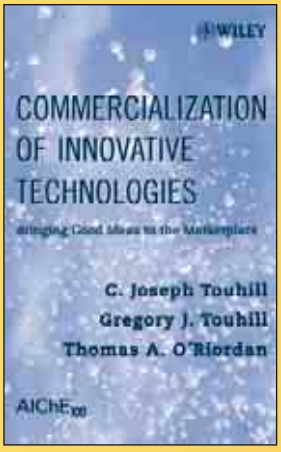
best seller

Beyond Technical Competence

Alan P. Rossiter

This book touches on many different topics and disciplines, including ethics, psychology, philosophy, and management theory, as well as issues related to practical workplace skills such as communication and time management. *Professional Excellence* also examines professional responsibilities, workplace interactions, and balancing work and home life. It includes a considerable amount of research material, which is complemented by personal experiences and anecdotes. The book also includes thought-provoking quotations and questions that can be used for personal reflection or group discussion. The style is deliberately very simple, with the objective of providing an "easy read" for time-pressured professionals and business people.

Paperback 110 pages 2008 ISBN 978-0-470-37737-6 USD $39.95/CAD $47.95/£26.95/€34.90



Commercialization of Innovative Technologies

best seller

Bringing Good Ideas to the Marketplace

C. Joseph Touhill, Gregory Touhill, Thomas O'Riordan

Got a great idea for new technology? Let this expert guide be your blueprint for successful entrepreneurship—from building an innovation team to bringing a product to market. *Commercialization of Innovative Technologies* takes you through the complete lifecycle of product innovation, including screening, funding, development, and commercialization. It gives you an edge as it focuses on three core areas that set the stage for successful commercialization:

- Developing and managing an "innovation team" of inventors, investors, technologists, and entrepreneurs
- Building a portfolio that spreads risk
- Leveraging input from technologists throughout the commercialization process.

Hardcover 252 pages 2008 ISBN 978-0-470-23007-7 USD $64.95/CAD $77.99/£43.50/€54.90

Practical Biotransformations

A Beginner's Guide

Gideon Grogan, *York University*

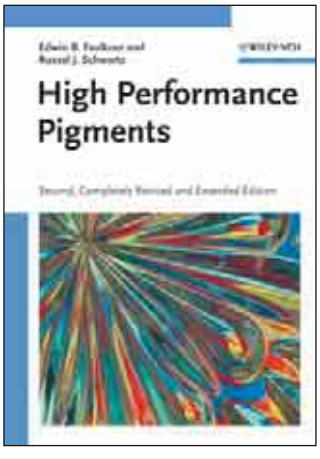
This book demystifies biotransformation research in an accessible and user-friendly way, and encourages the introduction of biocatalysis into synthetic organic labs. Organic chemists and researchers are introduced to the potential value of biotransformation methodology. There is a clear emphasis on usability, helping readers assemble the necessary equipment and resources needed to begin research in the biotransformations area.

Topics covered include:

- Introduction to equipment in a biotransformations lab
- Biocatalyst sources – descriptions of currently available enzymes and microbiological culture collections with contact information.
- Advantages of using powdered commercially available enzymes with examples from the literature
- The use of microbial biocatalysts, including maintenance and growth
- Basic gene cloning and the use of 'designer' biocatalysts
- Industrial case studies as an illustration of a bench-level to process-level reaction

Paperback 344 pages 2009 ISBN 978-1-4051-7125-0 USD $69.99/CAD $83.99/£34.95/€44.90

Hardcover 344 pages 2009 ISBN 978-1-4051-9367-2 USD $148.50/CAD $178.20/£90.00/€115.00



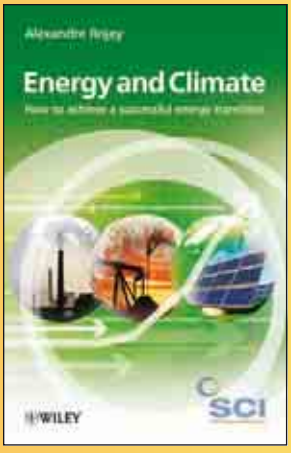
High Performance Pigments

SECOND COMPLETELY REVISED AND EXTENDED EDITION

Edwin B. Faulkner, Russell J. Schwartz, *both of SunChemical Corp., USA;* Editors

As technology drives the economy the market for pigments is steadily growing. High performance pigments have become increasingly important in recent years, with a growth rate well in advance of the more classical types of pigments. This book provides up-to-date information on the market for high performance pigments, synthesis, reaction mechanisms, physical and chemical properties, applications, regulatory affairs, toxicology, and ecotoxicology. It is the only one on the market covering all high performance pigments in a single volume, offering both producers and users of high performance pigments the opportunity to review and update their understanding of latest technologies and market issues, together with assessing key regulatory affairs, in this specialty niche of the chemical industry.

Hardcover 538 pages 2009 ISBN 978-3-527-31405-8 USD $230.00/CAD $276.00/£140.00/€159.00



Energy and Climate

new

How To Achieve A Successful Energy Transition

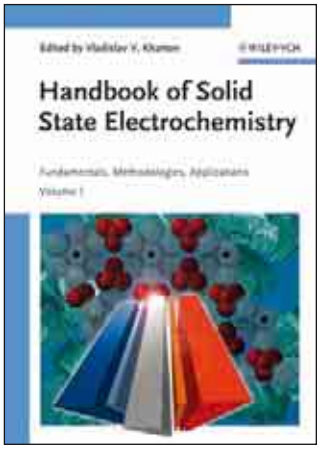
Alexandre Rojey

Energy & Climate: How to achieve a successful energy transition covers all the technology options available and summarizes key information from the International Energy Agency and other leading organizations, providing a detailed technological roadmap for this transition which aims to avoid both ecological and economic disaster. Topics that are analyzed and discussed in this edition are:

- More energy efficient technologies
- New developments in fossil fuels
- Renewable energy sources such as solar and wind energy and biofuels
- Hydrogen as an energy vector
- New energy storage systems
- Hybrid vehicles
- Capture and long-term storage of carbon dioxide

Written and translated by the former Director for Sustainable Development at IFP, Energy & Climate: How to achieve a successful energy transition is an essential introductory book for scientists and researchers working in energy and climate-related topics as well as all those interested in how to manage a sustainable energy supply while still reducing harmful carbon dioxide emissions.

Paperback 168 pages 2009 ISBN 978-0-470-74427-7 USD $55.00/CAD $66.00/£29.95/€37.90



Handbook of Solid State Electrochemistry

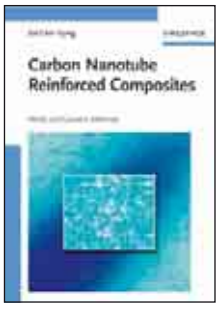
new

Fundamentals, Methodologies, Applications

Vladislav V. Kharton, *CICECO, Univ. of Aveiro, Portugal;* Editor

The only comprehensive handbook on this rapidly developing topic combines fundamental information with a brief overview of recent advances in the field. Particular attention is given to the most important developments performed during the last decade—methodological and theoretical aspects of solid-state electrochemistry—as well as practical applications. The highly experienced editor includes chapters with critical reviews of theoretical approaches, experimental methods, and modeling techniques, and provides definitions and explains the relevant terminology as necessary. Several chapters cover all the key groups of the ion-conducting solids important for practice; namely, cationic, protonic, oxygen-anionic, and mixed conductors, and also conducting polymer and hybrid materials.

Hardcover 502 pages 2009 ISBN 978-3-527-32318-0 USD $210.00/CAD $252.00/£140.00/€159.00



Carbon Nanotube Reinforced Composites

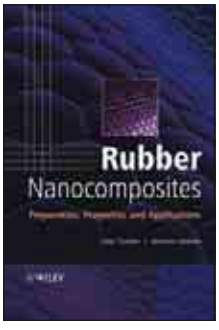
new

Metal and Ceramic Matrices

Sie Chin Tjong, *City Univ. of Hong Kong, China*

Offering broad insight into the potential applications of carbon nanotubes with metals and ceramic materials as a matrix, this book focuses on the preparation and the microstructural, physical, and mechanical characterizations of such novel nanocomposites. It features information on current synthesis and structure-property-relationships of metals and ceramics reinforced with CNT, organizing the vast array of surveys scattered throughout the literature in a single resource. With its laboratory protocols and data tables, this is invaluable reading for research workers and academics, as well as for applied scientists and industry personnel.

Hardcover 242 pages 2009 ISBN 978-3-527-40892-4 USD $200.00/CAD $240.00/£110.00/€129.00



Rubber Nanocomposites

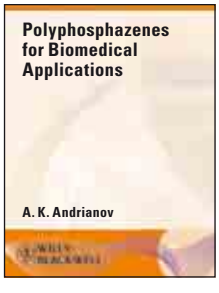
new

Preparation, Properties and Applications

Sabu Thomas, Ranimol Stephen, *both of Mahatma Gandi Univ., India*

Rubber Nanocomposites focuses on the preparation, characterization, and properties of natural and synthetic rubber nanocomposites. The book carefully debates the preparation of unmodified and modified nanofillers, various manufacturing techniques of rubber nanocomposites, structure, morphology, and properties of nanocomposites. The text reviews the processing, characterization, and properties of 0-, 1D, and 2D nanofiller reinforced rubber nanocomposites. It examines the polymer/filler interaction, i.e., the compatibility between matrix and filler using unmodified and modified nanofillers. The book also examines the applications of rubber nanocomposites in various engineering fields, which include tyre engineering and the current state of the art.

Hardcover 896 pages 2009 ISBN 978-0-470-82345-3 USD $315.00/CAD $378.00/£210.00/€269.00



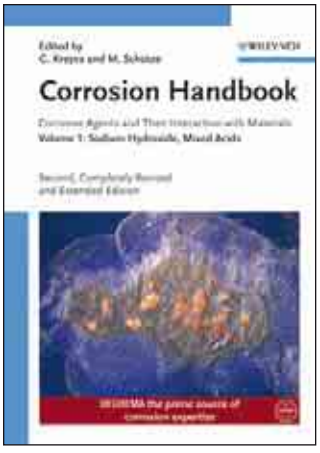
Polyphosphazenes for Biomedical Applications

new

A. K. Andrianov, *Consultant*

This book serves as both an introduction and a practical guide on the synthesis and use of polyphosphazenes, a new and very versatile polymer family that has recently demonstrated bioactivity, biocompatibility, and biodegradability. These polymers find uses as potent vaccine adjuvants and microencapsulating agents, and biodegradable materials and scaffolds for tissue engineering, and biocompatible coatings and carriers for gene delivery, for example. A broad spectrum of application specialists working in chemistry, life scientists, and chemical engineering will appreciate this single-source reference.

Hardcover 482 pages 2009 ISBN 978-0-470-19343-3 USD $125.00/CAD $150.00/£83.50/€109.00
Online Book. *See page 8 for more information.* **ISBN 978-0-470-47888-2**



Corrosion Handbook

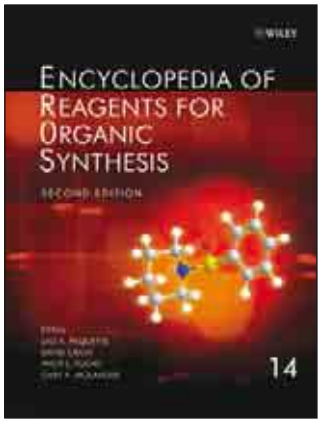
best seller

13-VOLUME SET

Gerhard Kreysa; Michael Schütze, *both of DECHEMA e. V., Frankfurt/M., Germany;* Editors

In virtually every industry where materials are processed, corrosion problems must be faced and the possibility of corrosive effects anticipated. The *Corrosion Handbook* is a comprehensive collection of knowledge that is unique both in scope as well as content. It covers corrosion data and the chemical resistance of all technically important metallic, non-metallic, inorganic, and organic materials in contact with aggressive media. What's more, the *Corrosion Handbook* describes methods of corrosion protection and prevention. All of which makes it the world's prime information source when it comes to addressing corrosion and selecting materials that will prevent corrosive effects in the first place.

Hardcover 6500 pages 2009 ISBN 978-3-527-31217-7
USD $6030.00/CAD $7235.99/£3250.00/€4520.00



Encyclopedia of Reagents for Organic Synthesis

new

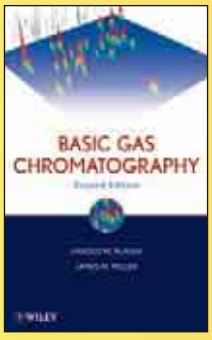
SECOND EDITION

Leo A. Paquette, *The Ohio State Univ., USA;* Editor-in-Chief

"This should find an honored place in every laboratory engaged in synthesis and in every chemistry library. Chemists working on organic synthesis will gain a competitive advantage by keeping it within easy reach."
—Angewandte Chemie

At last, the long anticipated second edition of the highly successful *Encyclopedia of Reagents for Organic Synthesis* (EROS) is now available in print. With its wealth of valuable information, excellent editorial leadership, and methodical classification, EROS is the authoritative reference regarding reagents and catalysts, which makes EROS vital reading for everyone working in organic synthesis.

Hardcover 12094 pages 2009 ISBN 978-0-470-01754-8
USD $7000.00/CAD $8400.00/£3500.00/€5449.00



Basic Gas Chromatography

new

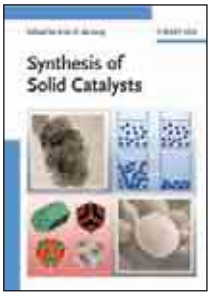
SECOND EDITION

Harold M. McNair, *Virginia Polytechnic Inst. and State Univ., USA;* James M. Miller, *Drew Univ., USA;* Frank A. Settle

This second edition of the acclaimed *Basic Gas Chromatography* contains thoroughly updated information on the subject and has been expanded by several chapters, including one on multidimensional gas chromatography and another on sampling methods. It also contains new chapters on special injection techniques and fast gas chromatography. In addition, there is a brief introduction to GC written for readers with varying levels of expertise in the field. And, as with the popular first edition, this one delivers comprehensive coverage of basic topics, such as stationary phases, packed columns and inlets, capillary columns and inlets, detectors, and qualitative and quantitative anaylsis.

TECHNIQUES IN ANALYTICAL CHEMISTRY

Hardcover 256 pages 2009 ISBN 978-0-470-43954-8 USD $59.95/CAD $71.95/£40.50/€52.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-48010-6**



Synthesis of Solid Catalysts

new

Krijn P. de Jong, *Univ. of Utrecht, The Netherlands;* Editor

This practical book combines recent progress in the synthesis of solid catalysts with a discussion of the general aspects of catalyst preparation. The first part deals with the basic principles of heterogeneous catalyst preparation, explaining the main aspects of sol-gel chemistry and interfacial chemistry, followed by such techniques as co-precipitation and immobilization. New tools for catalyst preparation, including microspectroscopy and high-throughput experimentation, are also taken into account. The second part heightens the practical relevance by providing 10 case studies on such hot topics as the preparation of zeolites, hydrotreating catalysts, methanol catalyst, and gold catalysts.

Hardcover 422 pages 2009 ISBN 978-3-527-32040-0 USD $215.00/CAD $258.00/£120.00/€139.00

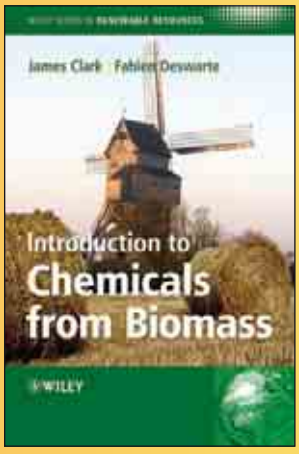
Friction, Wear and Wear Protection

new

Alfons Fischer, *Univ. Duisburg-Essen, Germany;* Kirsten Bobzin, *Technical Univ. of Aachen, Germany;* Editors

In the past, most industrial solutions to friction wear were a product of trial and error. But this book offers a more predictable approach as it summarizes the systematic means to finding technical solutions to friction. Here, papers from more than 150 scientists and engineers afford an up-to-date overview of the current research on friction and wear, including new approaches and innovative technical solutions. Topics covered include wear resistant non-ferrous materials, wear resistant fe-base materials, tribology, thin coatings, modelling, and computer simulations. Case examples embrace a wide variety of industrial sectors.

Hardcover 850 pages 2009 ISBN 978-3-527-32366-1 USD $330.00/CAD $396.00/£180.00/€209.00



Introduction to Chemicals from Biomass

James H. Clark, *York Univ., UK;* Fabien Deswarte, *Clean Technology Centre;* Editors

Presenting an overview of the use of bioresources in the 21st century, this book covers resources, chemical composition of biomass, key factors affecting composition, utilization of wastes, extraction technologies, controlled pyrolysis, fermentation, platform molecules, and green chemical technologies for their conversion to valuable chemicals. The text shows how smaller volume chemicals could become bulk chemicals as a result of a greater exploitation of biomass products, making it an important resource for academic and industrial scientists and researchers.

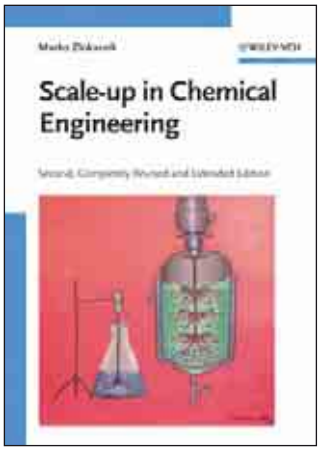
Topics covered include:

- The chemical value of biomass
- Green chemical technologies
- Production of energy from biomass.

WILEY SERIES IN RENEWABLE RESOURCES

Hardcover 198 pages 2008 ISBN 978-0-470-05805-3 USD $90.00/CAD $108.00/£45.00/€57.90

Online Book. *See page 8 for more information.* **ISBN 978-0-470-69747-4**



Scale-up in Chemical Engineering

SECOND, COMPLETELY REVISED & ENLARGED EDITION

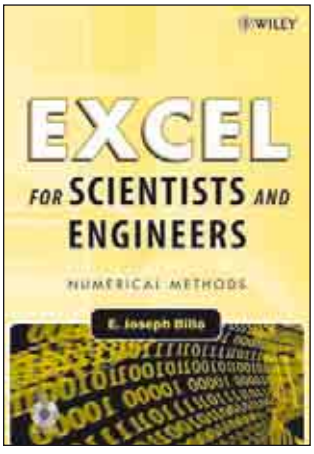
Marko Zlokarnik, *8010 Graz, Austria*

". . . This book presents the dimensional analysis as the only secure foundation for scale-up in such a way that it can be immediately and easily understood, even without a mathematical background. . . ." **—Environmental Engineering and Management Journal**

Covering the important task of the scale-up of processes from laboratory to production scale, this easily comprehensible book is divided into two sections. The first details the theoretical principles, introducing the subject for readers without the need for a profound prior knowledge of mathematics. It discusses the fundamentals of dimensional analysis, the treatment of temperature-dependent and rheological material values, and scale-up where model systems or not available or only partly similar. The second part presents the individual basic operations and covers the fields of mechanical, thermal, and chemical process engineering with respect to dimensional analysis and scale-up. The rules for scale-up are given and discussed for each operation.

Hardcover 296 pages 2006 ISBN 978-3-527-31421-8 USD $175.00/CAD $209.99/£110.00/€125.00

Online Book. *See page 8 for more information.* **ISBN 978-3-527-60815-7**



Excel for Scientists and Engineers

best seller

Numerical Methods

E. Joseph Billo, *Boston College, USA*

"I am wiser now, and you should be, too! This book is strongly recommended for all engineers, scientists, undergraduate, and graduate students that have ever used Excel."

—Materials and Manufacturing Processes, Volume 22, Issue 7 2007

Learn to fully harness the power of Microsoft Excel® to perform scientific and engineering calculations. With this text as your guide, you can execute the calculations needed to solve a variety of chemical, biochemical, physical, engineering, biological, and medicinal problems. Following step-by-step instructions, here are just a few of the calculations you'll learn to perform:

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Excel for Scientists and Engineers

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Kirk-Othmer Separation Technology

2 volume set

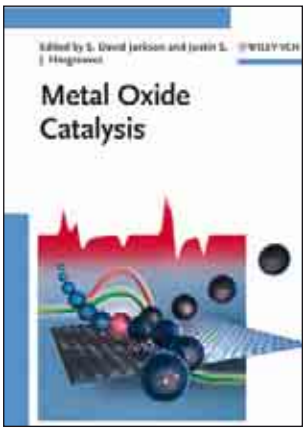
TWO-VOLUME SET

SECOND EDITION

Wiley

In this rigorous look at the subject, readers will discover more than 70 self-contained articles that explore the principles on which separation processes are based, such as process design, equipment, operation, and the use of old and new separation processes. Not only has the content been expanded, updated, and modernized vis-a-vis the first edition, but energy and environmental considerations, as well as economic aspects, are also thoroughly examined. Covering a wealth of critical topics, the articles found here have been arranged alphabetically for ease of use and focus on both established and newer separation processes of industrial importance.

Hardcover 2544 pages 2008 ISBN 978-0-470-12741-4 USD $630.00/CAD $755.99/£420.00/€539.00



Metal Oxide Catalysis

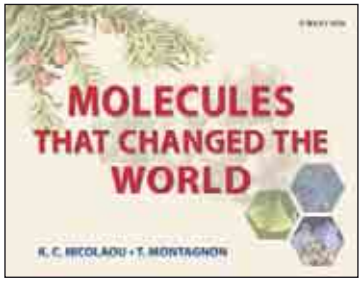
2 volume set

TWO-VOLUME SET

S. David Jackson, Justin S. J. Hargreaves, *both of Univ. of Glasgow, UK;* Editors

Due to the ability to use "normal" metals, metal oxides do not have any detrimental effect on the natural world and therefore are more environmentally friendly catalytic systems than their heavy and noble metal counterpart catalysts. An up-to-date review of metal oxides in catalysis, this two-volume, ready reference comprehensively covers characterizations and applications alike, while uniform editing throughout ensures that information is delivered in a consistent format.

Hardcover 887 pages 2008 ISBN 978-3-527-31815-5 USD $360.00/CAD $432.00/£240.00/€279.00



Molecules That Changed the World

K.C. Nicolaou, Tamsyn Montagnon

Delve into the fascinating world of substances like Aspirin, Taxol, and many more. This exciting new book introduces the world's most important molecules, showing the role certain compounds have to play in our everyday lives. For example, the story of Aspirin is featured, beginning 3,500 years ago in Egypt, through to its first synthesis and various applications. This is a must for every chemist, natural scientist, and everyone interested in the sciences.

Hardcover 385 pages 2008 ISBN 978-3-527-30983-2 USD $55.00/CAD $65.99/£29.95/€34.90

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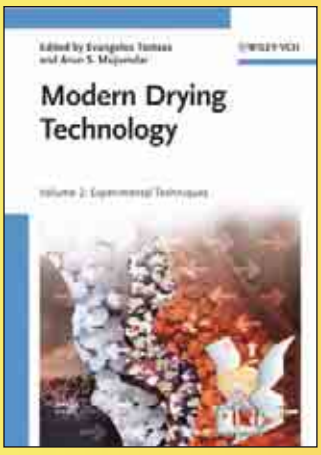

Modern Drying Technology

new

Experimental Techniques

VOLUME TWO

Evangelos Tsotsas, *Otto-von-Guericke-Univ. Magdeburg, Germany;* Arun S. Mujumdar, *Univ. of Singapore;* Editors

This comprehensive five-volume handbook examines achieving greater efficiency for the unavoidable, yet vital drying process. It explores essentials such as energy savings, heat recovery, computational methods, experimental techniques, and process intensification. Volume Two of the five-volume handbook on *Modern Drying Technology* comprises modern experimental techniques such as magnetic resonance imaging for measurement and visualization of moisture profiles in the interior of porous bodies during drying, Raman spectroscopy for measurement of concentration profiles during the drying of thin films/coatings, and analytical methods for measurement of drying kinetics. Other modern experimental techniques are covered, making this a comprehensive reference for all chemical, process, mechanical, and apparatus construction engineers and analytical chemists.

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Modern Drying Technology

Computational Tools at Different Scales

VOLUME ONE

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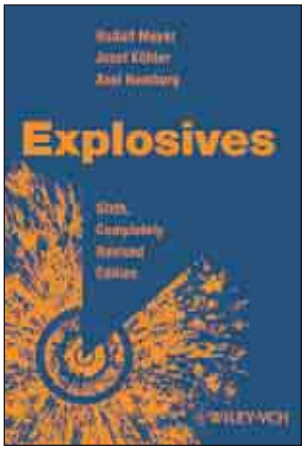

Explosives

SIXTH, COMPLETELY REVISED EDITION

Rudolf Meyer, *formerly Wasag-Chemie AG, Germany;* Josef Köhler, *Wraige & Köhler, Pyrotechnik OEG, Austria;* Axel Homburg, *formerly Dynamit Nobel, Germany*

"The wealth of information and an index that comprises some 1,500 keywords . . . make this a unique source of knowledge for anybody working with explosives." **—Propellants, Explosives, Pyrotechnics**

This world-famous work has been enlarged and updated without altering the tried-and-tested format. Some 500 alphabetically ordered entries consider the physicochemical properties, production methods, and safe applications of over 120 explosive chemicals. It also covers some 70 fuels, additives, and oxidizing agents, describing relevant test methods. The extensive thermodynamic data are now also provided on a CD-ROM. This excerpt from the ICT Thermodynamical Database not only includes additional thermodynamic data and references to further reading, but also features enhanced search facilities.

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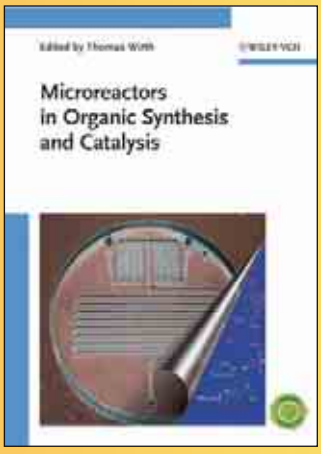


Microreactors in Organic Synthesis and Catalysis

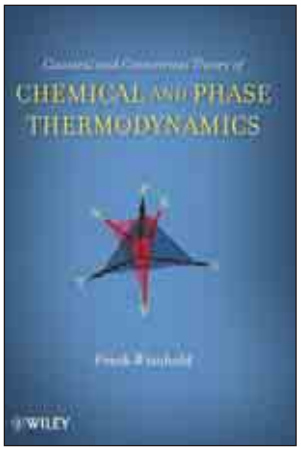
Thomas Wirth, *Cardiff Univ., UK,* Editor

This one-stop reference is the first book on this emerging and rapidly developing field with a focus on synthesis and catalysis. As such, it covers all aspects from academia and industry in a clearly structured way. Leading experts provide the background information, while chapters on different reaction types and industrial applications make this an equally vital resource for specialists. *Microreactors in Organic Synthesis and Catalysis* is a must have for specialists and beginners alike.

A sampling of topics includes:

- The fabrication of microractors
- The properties and use of microreactors
- Organic chemistry in microreactors
- And more.

Hardcover 297 pages 2008 ISBN 978-3-527-31869-8 USD $200.00/CAD $239.99/£120.00/€139.00
Online Book. *See page 8 for more information.* **ISBN 978-3-527-62285-6**



Classical and Geometrical Theory of Chemical and Phase Thermodynamics

new

Frank Weinhold

Because it is grounded in math, chemical thermodynamics is often perceived as a difficult subject and many students are never fully comfortable with it. The first authoritative textbook presentation of equilibrium chemical and phase thermodynamics in a reformulated geometrical framework, *Classical and Geometrical Theory of Chemical and Phase Thermodynamics* shows how this famously difficult subject can be accurately expressed with only elementary high-school geometry concepts. Featuring numerous suggestions for research-level extensions, this simplified alternative to standard calculus-based thermodynamics expositions is perfect for undergraduate and beginning graduate students as well as researchers.

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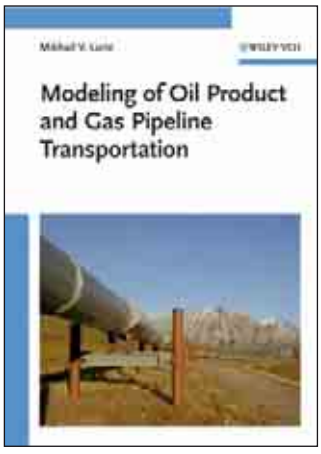


Modeling of Oil Product and Gas Pipeline Transportation

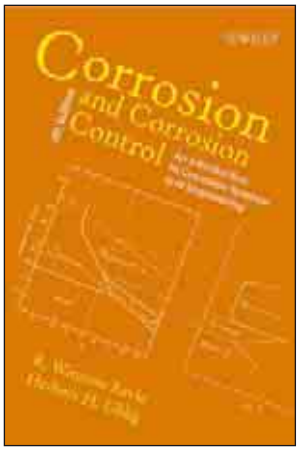
Mikhail V. Lurie, *Russian State Univ. of Oil and Gas, Russia*

The increasing demand for energy makes the need for efficient pipeline transportation even more vital. Providing an accessible introduction to the theory of pipeline transportation, *Modeling of Oil Product and Gas Pipeline Transportation* presents the physical laws governing the dynamics of fluid and gas flows in pipes and how these laws are transformed into mathematical equations building mathematical model. Based on a well tried-and-tested lecture at the Russian State Univ. of Oil and Gas, this accessible approach to the theory of pipeline transportation provides systematic coverage of various kinds of fluids.

Chapter topics include:

- Fundamentals of mathematical modeling of one-dimensional flows
- Models of transported media
- Structure of laminar and turbulent fluid flows
- And more.

Hardcover 234 pages 2008 ISBN 978-3-527-40833-7 USD $190.00/CAD $228.00/£110.00/€129.00



Corrosion and Corrosion Control

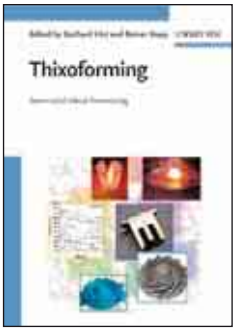
FOURTH EDITION

R. Winston Revie, *Canada Centre for Mineral and Energy Technology*

Providing a thorough introduction to corrosion science and engineering, *Corrosion and Corrosion Control, Fourth Edition,* uses a quantitative approach (including basic equations—explained and derived—and illustrative problems) to discuss the basic thermodynamic and electrochemical principles that cause corrosion and treat practical corrosion problems and methods of protection and prevention. Although the basic organization of the book remains unchanged from the previous edition, this new update includes:

- An introduction to new topics, including the element of risk management in corrosion engineering and new advanced alloys for controlling corrosion
- Expanded discussions on electrochemical polarization; predicting corrosion using thermodynamics, steel reinforcements in concrete, and applications of corrosion control technologies in automotive, nuclear, and other industries
- A stronger emphasis on environmental concerns and regulations in the context of their impact on corrosion engineering.

Hardcover 490 pages 2008 ISBN 978-0-471-73279-2 USD $105.00/CAD $125.99/£70.50/€89.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-27727-0**



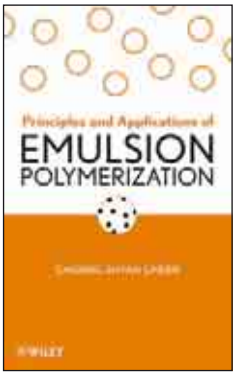
Thixoforming

Semi-solid Metal Processing

Gerhard Hirt; Reiner Kopp, *both RWTH Aachen, Germany;* Editors

Offering a sound technological overview, while also covering the basics, this book summarizes first-hand experience gained from 12 years of collaborative research on the four vital aspects of this field: materials science, modeling of flow behavior, tool and systems engineering.

Hardcover 474 pages 2009 ISBN 978-3-527-32204-6 USD $190.00 /CAD$ 228.00 /120.00 /€139.00

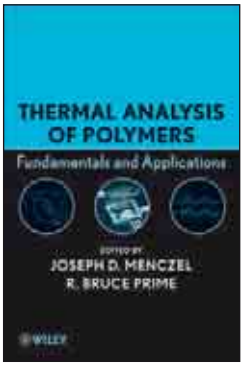


Principles and Applications of Emulsion Polymerization

Chorng-Shyan Chern

Principles and Applications of Emulsion Polymerization provides a comprehensive, up-to-date reference on emulsion polymerization methods, focusing on the fundamental mechanisms and kinetics of each process as well as how they can be applied to the manufacture of environmentally friendly polymeric materials. Topics covered include conventional emulsion polymerization, miniemulsion polymerization, microemulsion polymerization, industrial emulsion polymerization processes, important end-use properties of emulsion polymer (latex) products, and industrial applications in paints, coatings, adhesives, paper and board, and other products. This is a premier reference for scientists exploring emulsion polymerization.

Hardcover 252 pages 2008 ISBN 978-0-470-12431-4 USD $125.00/CAD $165.00/£83.50/€109.00
Online Book. *See page 8 for more information.* **ISBN 978-0-470-37794-9**



Thermal Analysis of Polymers

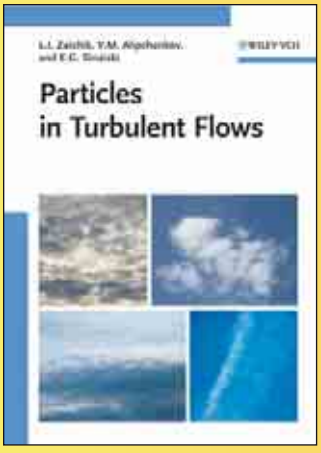
new

Fundamentals and Applications

Joseph D. Menczel, *Alcon Laboratories, USA;* R. Bruce Prime, *School of Process Administration, France*

Written by experts in the field, this practical guide presents a solid introduction to thermal analysis, methods, instrumentation, calibration, and application along with the necessary theoretical background. Whether you are new to thermal analysis techniques or wish to expand your experience to new techniques and applications, you will find this resource useful. Topics covered include differential scanning calorimetry and differential thermal analysis (dsc/dta), thermogravimetry, thermomechanical analysis and dilatometry, dynamic mechanical analysis, microthermal analysis, hot stage microscopy, and instrumentation.

Hardcover 688 pages 2009 ISBN 978-0-471-76917-0 USD $150.00/CAD $180.00/£100.00/€129.00



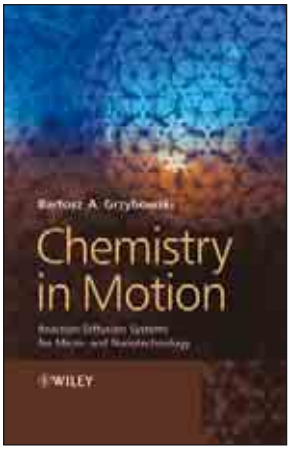
Particles in Turbulent Flows

new

Leonid Zaichik, Vladimir M. Alipchenkov, *both of Russian Academy of Sciences, Russia;* Emmanuil G. Sinaiski, *Leipzig, Germany*

The only work available to treat the theory of turbulent flow with suspended particles, *Particles in Turbulent Flows* also includes a section on simulation methods, comparing the model results obtained with the PDF method to those obtained with other techniques, such as DNS, LES, and RANS. Written by experienced scientists with background in oil and gas processing, this book is applicable to a wide range of industries—from the petrol industry and industrial chemistry to food and water processing.

Hardcover 318 pages 2008 ISBN 978-3-527-40739-2
USD $260.00/CAD $312.00/£155.00/€179.00



Chemistry in Motion

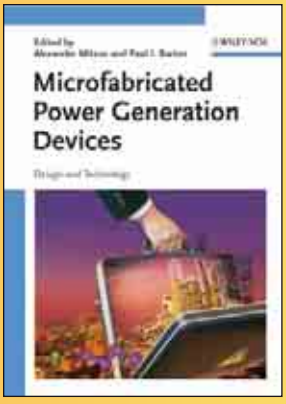
new

Reaction-Diffusion Systems for Micro- and Nanotechnology

Bartosz A. Grzybowski, *Northwestern Univ., USA*

With *Chemistry in Motion*, readers get a thorough introduction to reaction-diffusion (RD) processes with emphasis given to small-scale systems. Chapters include expert discussions of the mathematics of RD systems, RD in laboratory practice, and RD applications such as for chemical amplification and sensing. You'll discover the all-important connections between RD and modern materials science, chemistry, microanalysis, and cell biology. Using color to illustrate reaction-diffusion systems—which very often operate in color-producing reactions—this text is a go-to guide that anyone new to the field can readily employ in his or her studies and research.

Hardcover 302 pages 2009 ISBN 978-0-470-03043-1
USD $170.00/CAD $204.00/£90.00/€115.00



Microfabricated Power Generation Devices

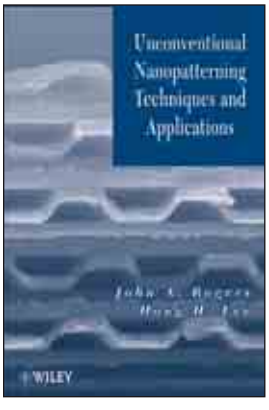
new

Design and Technology

Alexander Mitsos, *Numerica Technology LLC, USA;* Paul I. Barton, *Massachusetts Institute of Technology, USA;* Editors

The new power generation devices will have a higher energy density and therefore allow the user to run their power-hungry electronic appliance for a longer time between refueling or recharging, without a compromise in size, stability, or safety. Micropower generation devices will someday replace batteries for man-portable electronic appliances. The first book dedicated to micro power generation, the portable energy source of the near future, *Microfabricated Power Generation Devices* focuses on the technologies and methodologies for computer-aided conceptual design, covering the design, modeling, and simulation of micropower generation devices. Written by internationally recognized experts, the book takes readers from fundamentals and design aspects to numerous power generation strategies and system engineering, making it indispensable for materials scientists, chemists, physicists, process engineers, and those in power technology.

Hardcover 300 pages 2009 ISBN 978-3-527-32081-3 USD $215.00/CAD $258.00/£110.00/€129.00



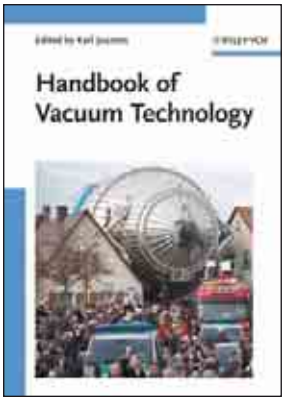
Unconventional Nanopatterning Techniques and Applications

John A. Rogers, Hong H. Lee, Editors

Patterning or lithography is at the core of modern science and technology and cuts across all disciplines. With the emergence of nanotechnology, conventional methods based on electron beam lithography and extreme ultraviolet photolithography have become prohibitively expensive. As a result, a number of simple and unconventional methods have been introduced, beginning first with research demonstrations in the mid 1990s. This book focuses on these unconventional patterning techniques and their applications to optics, organic devices, electronic devices, biological devices, and fluidics. Part One, Nanopatterning Techniques, deals with the principles and underlying science of a variety of nanopatterning techniques. Part Two, Applications, presents the applications of techniques discussed in Part One. In addition to detailed explanations of the implementation of each application, these chapters also discuss the aspects related to practical applications.

Hardcover 598 pages 2008 ISBN 978-0-470-09957-5 USD $125.00/CAD $150.00/£83.50/€109.00

Online Book. *See page 8 for more information.* **ISBN 978-0-470-40578-9**

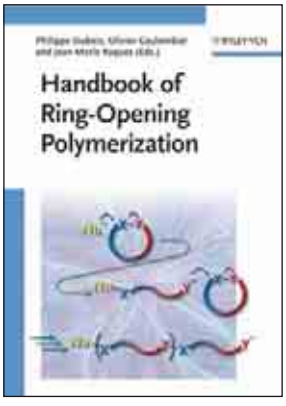


Handbook of Vacuum Technology

Karl Jousten, *Physikalisch-Technische Bundesanstalt, Germany;* Editor

A comprehensive standard work and important resource for both students and professionals in research and industry who need detailed knowledge of the theory and applications. *Handbook of Vacuum Technology* is brimming with numerical examples and numerous illustrations that visualize the theoretical issues, backed by many useful tables and charts, plus over 500 illustrations. It also discusses the latest developments in vacuum measurement techniques and leak detection in vacuum systems, as well as the connection of vacuum systems to computerized control systems. This comprehensive standard work provides students in physics, chemical engineering, and mechanical engineering, as well as professionals in the physical industry, with everything they need to know in detail about the theory and applications of vacuum technology.

Hardcover 1040 pages 2008 ISBN 978-3-527-40723-1 USD $275.00/CAD $330.00/£165.00/€189.00



Handbook of Ring-Opening Polymerization

new

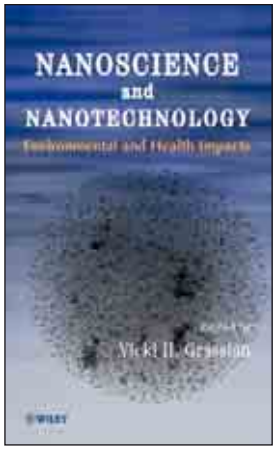
Philippe Dubois, Olivier Coulembier, Jean-Marie Raquez, *all of Univ. of Mons-Hainaut, Belgium;* Editors

This comprehensive, truly one-stop reference discusses monomers, methods, stereochemistry, industrial applications, and more. Chapters written by internationally acclaimed experts in their respective fields cover both basic principles and up-to-date information, ranging from the controlled ring-opening polymerization methods to polymer materials of industrial interest. From general concepts to industrial applications, from "green chemistry" methods to stereochemistry, *Handbook of Ring-Opening Polymerization* provides everything polymer chemists, materials scientists, plastics technologists, chemical engineers, physical chemists, and chemists in industry need to know about this important reaction type.

Chapter topics include:

- Thermodynamics and kinetics of ring-opening polymerization (ROP)
- General mechanisms in ROP
- Silicium containing polymers
- Sulfur-nitrogen-phosphorous containing polymers
- Polymerization of depsipeptides, cyclic urethanes, and ureas
- Polyethers and polyoxazolines
- Polyamides
- Metathesis polymerization of olefins and polymerization of alkynes
- Polyesters from lactones
- And more.

Hardcover 425 pages 2009 ISBN 978-3-527-31953-4 USD $215.00/CAD $258.00/£130.00/€149.00



Nanoscience and Nanotechnology

Environmental and Health Impacts

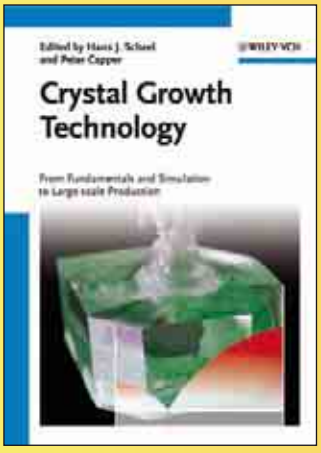
Vicki H. Grassian, Editor

Covering various aspects of nanoscience and nanotechnology and what is known about the potential environmental and health impacts, this comprehensive book addresses the toxicity of nanomaterials, fate and transport of nanomaterials in the environment, and occupational health aspects of nanotechonology.

- Brings together, uniquely in one source, research on environmental implications of nanotechnology and engineered nanoparticles
- Has broad interdisciplinary appeal for chemists, engineers, environmental scientists, materials scientists, toxicologists, occupational and environmental health specialists, and regulatory personnel

Hardcover 470 pages 2008 ISBN 978-0-470-08103-7 USD $105.00/CAD $126.00/£70.50/€89.90

Online Book. *See page 8 for more information.* **ISBN 978-0-470-39661-2**



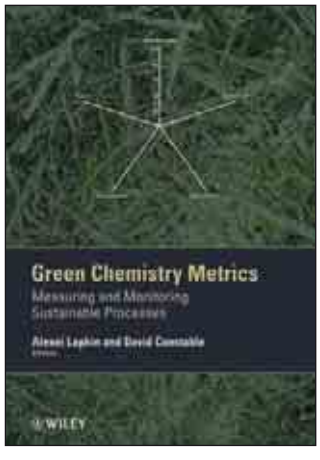
Crystal Growth Technology

From Fundamentals and Simulation to Large-scale Production

Hans J. Scheel, *Scheel Consulting, Switzerland;* Peter Capper, *SELEX Sensors and Airborne Systems Infrared Ltd., UK*

Capturing the essence of current trends, markets, design tools, and technologies in this key field, the internationally acclaimed expert editors have put together a handy reference tailor-made for readers facing the threshold challenges between research and industrial applications. Following a look at general aspects, *Crystal Growth Technology* goes on to discuss simulation of industrial growth processes, compound semiconductors, scintillator crystals, oxides, and crystal machining, as well as the potential of crystal growth for sustaining energy and aspects of world crystal production. With many figures, tables, and schemes, this book is a must have for industrial and research chemists, physicists, and engineers.

Hardcover 521 pages 2008 ISBN 978-3-527-31762-2 USD $230.00/CAD $275.99/£140.00/€159.00



Green Chemistry Metrics

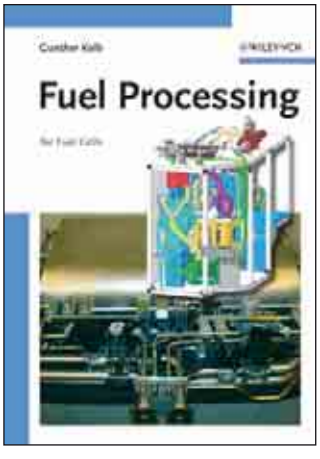
Measuring and Monitoring Sustainable Processes

Alexei Lapkin, David Constable, Editors

This book outlines fundamental developments in chemistry and chemical technology that have led to the development of green chemistry, green chemical technology, and sustainable chemical technology concepts, and provides a foundation for the development of the corresponding metrics. It covers different approaches to metrics, and case study examples of their applications, and problems in practice. Contents include:

- Incentives for using green chemistry and the presentation of an approach for green chemical design
- Green product design
- Application of green metrics analysis to chemical reactions and synthesis plans
- Mass balances and life cycle assessment
- Process metrics
- Application of life cycle assessment in process development
- Tools and strategies for greening chemical inventories in small businesses.

Hardcover 344 pages 2008 ISBN 978-1-4051-5968-5 USD $129.99/CAD $155.99/£70.00/€89.90



Fuel Processing

for Fuel Cells

Gunther Kolb, *Institut für Mikrotechnik Mainz GmbH, Germany*

Fuel cell technology attracts increasing attention nowadays, because it offers potential for lowering emissions owing to a potentially superior efficiency compared to conventional power generation. Fuel cells require hydrogen for their operation and consequently numerous technologies are under worldwide investigation for hydrogen storage aiming for distributed, mobile, and portable applications. Adopting a unique integrated engineering approach, this text covers all aspects of fuel processing, from the fundamentals to catalysts, reactors, chemical plant components, and integrated system design, right up to complete fuel processor systems and cost and production issues. Alongside providing an introduction to the subject, this reference also contains recent research developments, making it an invaluable handbook for chemical, power and process engineers, electrochemists, catalytic chemists, materials scientists, and engineers in power technology.

Hardcover 434 pages 2008 ISBN 978-3-527-31581-9 USD $215.00/CAD $257.99/£130.00/€149.00

Online Book. *See page 8 for more information.* **ISBN 978-3-527-62515-4**

Catalytic Air Pollution Control

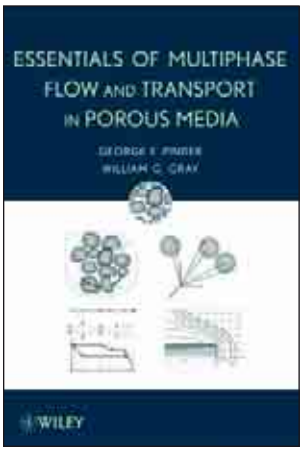
Commercial Technology

THIRD EDITION

Ronald M. Heck; Robert J. Farrauto, *Engelhard Corporation, NJ;* Suresh T. Gulati

This is the primary source for commercial catalytic air pollution control technology, offering engineers a comprehensive account of all modern catalytic technology. This third edition of *Catalytic Air Pollution Control: Commercial Technology* covers all the new advances in technology in automotive catalyst control technology, diesel engine catalyst control technology, small engine catalyst control technology, and alternate sustainable fuels for auto and diesel. A new chapter covers the synthesis and impact of alternative fuels (ethanol-gasoline mixtures (E-85) and bio-diesel) on emission control catalysts.

Hardcover 522 pages 2009 ISBN 978-0-470-27503-0 USD $110.00/CAD $132.00/£73.50/€94.90



Essentials of Multiphase Flow and Transport in Porous Media

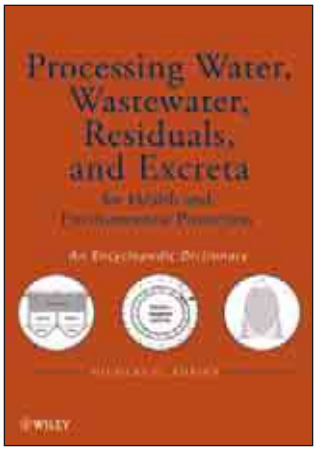
George F. Pinder, *Princeton Univ, USA;* William G. Gray

Examining the mathematical-physical rationale behind the equations that are currently used to describe the flow of fluid and transport of solutes in porous media, this book presents a comprehensive approach to the development of appropriate equations without prior knowledge of continuum mechanics, mixture theory, or similar areas of expertise.

The book carries the reader from the simplest of concepts to the final equations and then illustrates how the equations can be used to solve practical problems. Multidimensional, it fills the need for a reference and text in the physics of flow in porous media at the advanced undergraduate-graduate level and can also be used as a professional reference.

Hardcover 258 pages 2008 ISBN 978-0-470-31762-4 USD $105.00/CAD $109.95/£70.50/€89.90

Online Book. *See page 8 for more information.* **ISBN 978-0-470-38080-2**



Processing Water, Wastewater, Residuals, and Excreta for Health and Environmental Protection

An Encyclopedic Dictionary

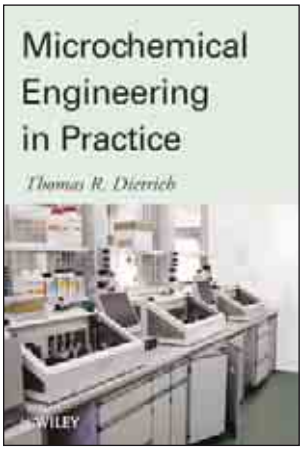
Nicolas G. Adrien

Compiled by Nicolas G. Adrien, a noted consulting engineer with four decades of experience, this dictionary defines over 25,000 key and ordinary terms related to water treatment, wastewater treatment, excreta disposal, residuals processing, and environmental health, including principles as well as proprietary and nonproprietary technologies, with extensive cross references between related terms.

Eighteen thousand examples and illustrations accompany the terms in the form of chemical reactions, formulas, figures, and tables, and an additional section lists approximately ten thousand terms indirectly related to the encyclopedia and the resources that can be used to find further information on these terms.

Hardcover 1132 pages 2008 ISBN 978-0-470-26193-4 USD $199.95/CAD $219.95/£133.00/€169.00

Online Book. *See page 8 for more information.* **ISBN 978-0-470-28711-8**



Microchemical Engineering in Practice

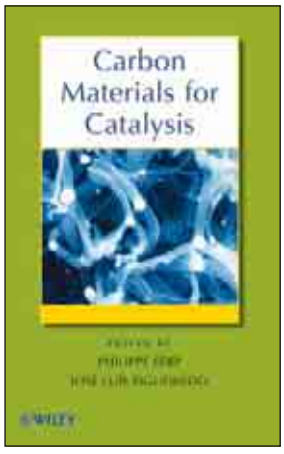
new

T. Dietrich

Providing the information chemists and engineers need to evaluate the use of microreactors, this book covers the technical, operational, and economic considerations for various applications. It explains the systems needed to use microreactors in production and presents examples of microreactor use in different chemistries, including larger scale production processes. This is an essential guide for chemists and engineers interested in investigating the advantages of chemical microreactors. *Microchemical Engineering in Practice* provides comprehensive coverage of use of microreactors in microchemical engineering and examples and case studies provided to describe the systems needed to include microreactors in a given chemistry.

Hardcover 508 pages 2009 ISBN 978-0-470-23956-8 USD $110.00/CAD $132.00/£73.50/€94.90

Online Book. *See page 8 for more information.* **ISBN 978-0-470-43187-0**

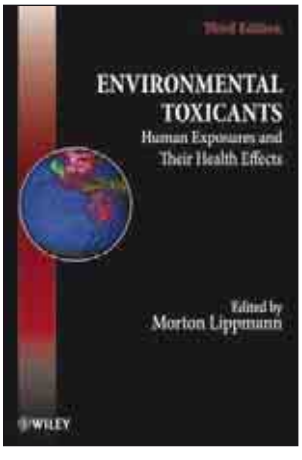


Carbon Materials for Catalysis

Philippe Serp, José Luís Figueiredo, Editors

This is the first comprehensive book covering all aspects of the use of carbonaceous materials in heterogeneous catalysis. It covers the preparation and characterization of carbon supports and carbon-supported catalysts; carbon surface chemistry in catalysis; the description of catalytic, photo-catalytic, or electro-catalytic reactions, including the development of new carbon materials such as carbon xerogels, aerogels, or carbon nanotubes; and new carbon-based materials in catalytic or adsorption processes. References at the end of each chapter guide readers to the primary literature, where they can explore each topic in greater depth. This unique book brings researchers fully up to date with the latest advances, supporting their efforts to develop new carbon materials and fully exploit their potential in catalysis. This is a premier reference for carbon, inorganic, and physical chemists; materials scientists and engineers; chemical engineers; and others.

Hardcover 579 pages 2009 ISBN 978-0-470-17885-0 USD $150.00/CAD $180.00/£100.00/€129.00



Environmental Toxicants

new

Human Exposures and Their Health Effects

THIRD EDITION

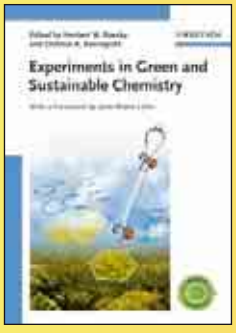
Morton Lippmann, *Institute of Environmental Medicine New York Univ. Medical Center, USA*

Gain the most current information and research available for performing risk assessments on exposed individuals and populations. Giving guidance to public health authorities, primary care physicians, and industrial managers, this third edition:

- Reviews current knowledge on human exposure to selected chemical agents and physical factors in the ambient environment
- Updates and revises the previous edition, in light of current scientific literature and its significance to public health concerns
- Includes new chapters on: airline cabin exposures, arsenic, endocrine disruptors, and nanoparticles.

Hardcover 1167 pages 2009 ISBN 978-0-471-79335-9 USD $195.00/CAD $234.00/£130.00/€165.00

Online Book. *See page 8 for more information.* **ISBN 978-0-470-44289-0**



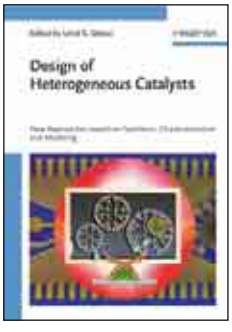
Experiments in Green and Sustainable Chemistry

new

Herbert W. Roesky; Dietmar Kennepohl, *Athabasca Univ., Canada;* Editors

Encouraging a new attitude and approach to chemistry, this is the first collection of green and sustainable experiments designed for lab courses and progressive teaching. Here, experts from around the globe present more than 40 accessible teaching experiments, all clearly structured and divided into the five main principles of sustainable or green chemistry: catalysis, solvents, high yield and one-pot synthesis, limiting waste and exposure, and special topics. The book features a foreword by Nobel prize winner Jean Marie Lehn.

Hardcover 307 pages 2009 ISBN 978-3-527-32546-7 USD $45.00/CAD $54.00/£29.95/€32.90



Design of Heterogeneous Catalysts

new

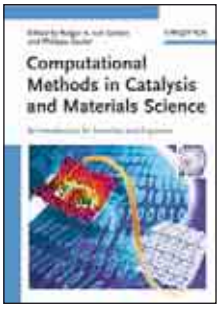
New Approaches based on Synthesis, Characterization and Modeling

Umit S. Ozkan, *Ohio State Univ., USA;* Editor

This long-awaited reference is the first to focus on the availability of characterization techniques that can examine surface reactions at the molecular level. As such, it offers practical examples from a wide array of fields, where catalyst design has been based on new insights and understandings, and presents such modern and important topics as self-assembly, nature-inspired catalysis, the nano-scale architecture of surfaces, and theoretical methods. With its inclusion of all the useful and powerful tools for the rational design of catalysts, this is a true must-have book for every researcher in the field.

Hardcover 340 pages 2009 ISBN 978-3-527-32079-0 USD $215.00/CAD $258.00/£120.00/€139.00

Online Book. *See page 8 for more information.* **ISBN 978-3-527-62532-1**



Computational Methods in Catalysis and Materials Science

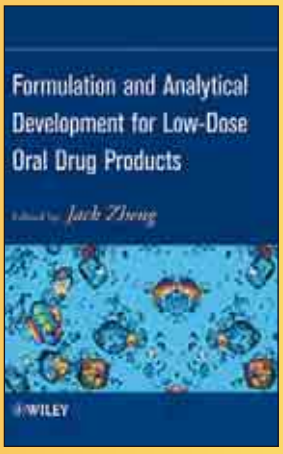
new

An Introduction for Scientists and Engineers

Rutger A. van Santen, *Eindhoven Univ. of Technology, The Netherlands;* Philippe Sautet, *Ecole Normale Supérieure de Lyon and CNRS, France;* Editors

This practical guide describes the basic computational methodologies for catalysis and materials science at an introductory level, presenting the methods with relevant applications, such as spectroscopic properties, chemical reactivity and transport properties of catalytically interesting materials. Edited and authored by internationally recognized scientists, the text provides examples that represent the state of the art in each field.

Hardcover 472 pages 2009 ISBN 978-3-527-32032-5 USD $145.00/CAD $174.00/£85.00/€99.00



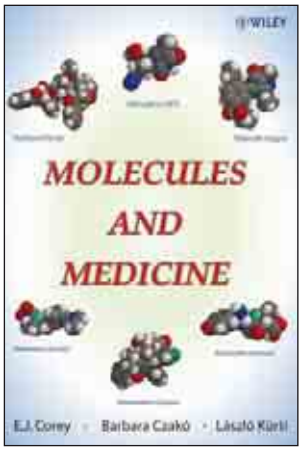
Formulation and Analytical Development for Low-Dose Oral Drug Products

new

Jack Zheng, Editor

There are unique challenges in the formulation, manufacture, analytical chemistry, and regulatory requirements of low-dose drugs. This book provides an overview of this specialized field and combines formulation, analytical, and regulatory aspects of low-dose development into a single reference book. It describes analytical methodologies like dissolution testing, solid state NMR, Raman microscopy, and LC-MS and presents manufacturing techniques such as granulation, compaction, and compression. Complete with case studies and a discussion of regulatory requirements, this is a core reference for pharmaceutical scientists, regulators, and graduate students.

Hardcover 461 pages 2009 ISBN 978-0-470-05609-7 USD $110.00/CAD $132.00/£73.50/€94.90
Online Book. *See page 8 for more information.* **ISBN 978-0-470-38636-1**

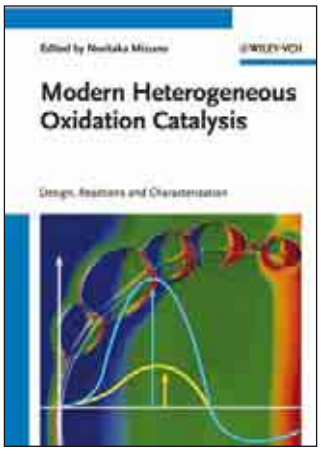


Molecules and Medicine

E. J. Corey, Barbara Czakó, László Kürti, *all of Harvard Univ., USA*

Molecules and Medicine delves into the discovery, application, and mode of action of more than 100 of the most popular drugs now used in modern medicine. For each medication covered, you'll find vital information on the condition it treats, a summary of its industrial development, the year it became available, the biological target of the medicine, and interacting side effects and related drugs. A sampling of the many medications addressed includes acetylsalicylic acid (aspirin) and Naproxen (Aleve), Tiotropium Bromide (Spiriva) and Loratadine (Claritin), Clopidogrel Bisulfate (Plavix), Sildenafil (Viagra), Ranitidine (Zantac), Acyclovir (Zovirax), plus dozens more.

Paperback 272 pages 2007 ISBN 978-0-470-22749-7 USD $49.95/CAD $59.99/£33.50/€42.90
Hardcover 254 pages 2008 ISBN 978-0-470-26096-8 USD $99.95/CAD $119.99/£66.95/€84.90



Modern Heterogeneous Oxidation Catalysis

best seller

Design, Reactions and Characterization

Noritaka Mizuno, *The Univ. of Tokyo, Japan*

Heterogeneous oxidation catalysis is one of the key reactions in chemistry, especially when it comes to industrial chemistry. This technology reduces chemical waste, making reactions much more efficient. Today, more than ever, there is a real need for novel environmentally friendly green oxidants, such as oxygen, hydrogen peroxide, and others. Filling a wide gap in the literature, this long-awaited, comprehensive reference covers all of the important catalyst classes, including metal oxides, polyoxometalates, and zeolites. Here, readers will find everything they need to know—from structure design to characterization, from immobilization to industrial processes.

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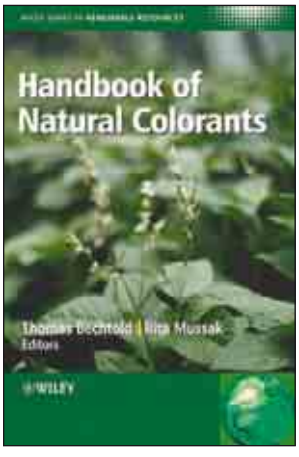

Handbook of Natural Colorants

Thomas Bechtold; Rita Mussak; Editors

Written by scientists with specialized knowledge in the field, *Handbook of Natural Colorants* provides a unique source of information, summarizing the present knowledge of natural colorants in depth. Supporting researchers in this emerging field of sustainable chemistry, it provides easy access to the theory and practice of natural colorants from different viewpoints, including agricultural, economic and legislative aspects.

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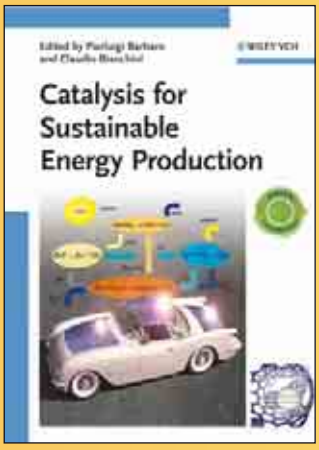

Catalysis for Sustainable Energy Production

new

Pierluigi Barbaro, *Claudio Bianchini, both of Ist. di Chimica dei Composti Organo Metallici, Italy;* Editors

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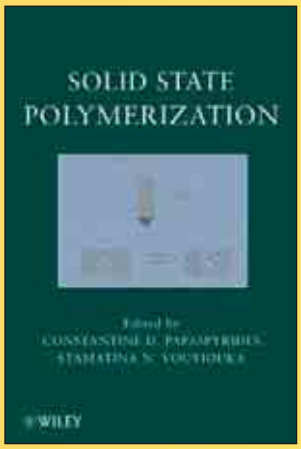

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