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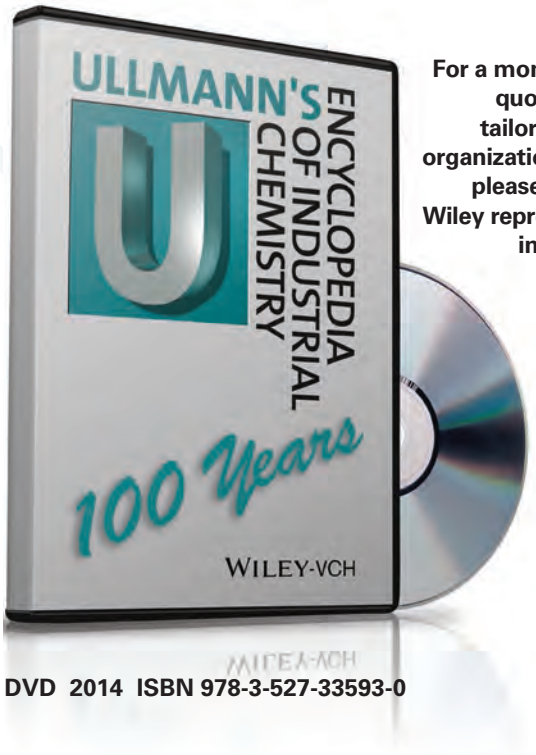

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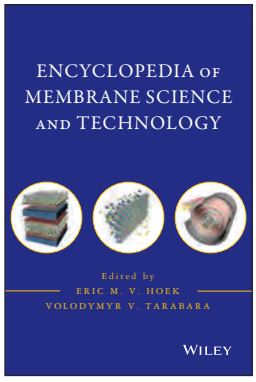

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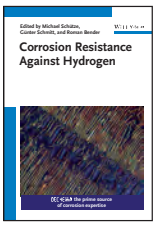

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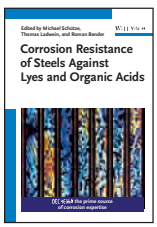

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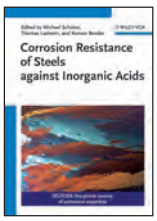

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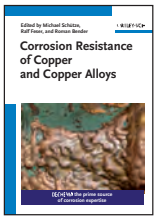

Corrosion Resistance of Copper and Copper Alloys

Michael Schütze, Ralf Feser, Roman Bender, Editors

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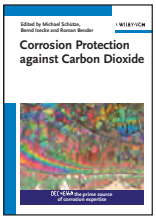

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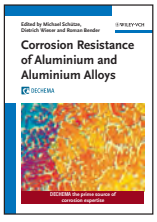

Corrosion Resistance of Aluminium and Aluminium Alloys

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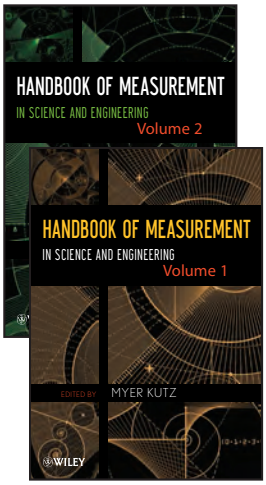

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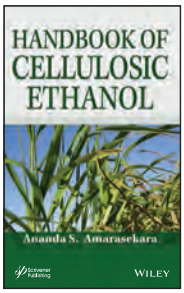

Handbook of Cellulosic Ethanol

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Ananda S. Amarasekara

The *Handbook of Cellulosic Ethanol* covers all aspects of this new and vital alternative fuel source, providing readers with the background, scientific theory, and recent research progress in producing cellulosic ethanol via different biochemical routes, as well as future directions.

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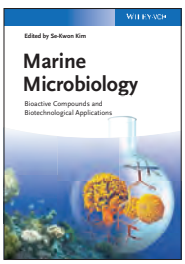

Marine Microbiology

Bioactive Compounds and Biotechnological Applications

Se-Kwon Kim, Editor

Deliberately breaking with the classical biology-centered description of marine organisms and their products, this reference emphasizes microbial technology over basic biology. As such, it systematically covers the technology behind high-value compounds for use in pharmaceuticals, nutraceuticals, or cosmetics, from prospecting to production issues. Following a definition of the field, the book addresses all industrially important aspects of marine microbial biotechnology, from archaebacteria to cyanobacteria to algae and symbionts. It also looks at commercially important compounds produced by these microorganisms together with their applications. Throughout, the emphasis is on technological considerations and the future potential of these organisms or compound classes is discussed.

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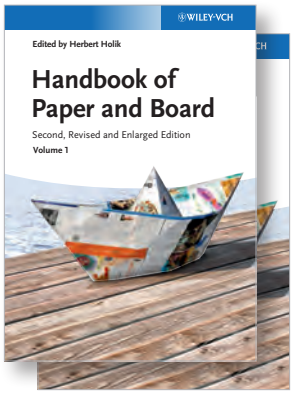

Handbook of Paper and Board

SECOND REVISED AND ENLARGED EDITION, TWO-VOLUME SET

Herbert Holik, Editor

Paper-making is a fascinating art and technology. A lot of knowledge goes into evaluating and optimizing the whole process chain to ensure efficient production. The second edition of this successful handbook offers a comprehensive view of the technical, economic, ecologic, and social background of paper and board. It has been updated, revised, and largely extended in both depth and breadth and includes the further use of paper and board in converting and printing. It examines the materials required for paper and board manufacturing such as fibers, chemical additives, and fillers. It defines paper and board grades. And it explains the testing and analyses of fiber suspensions, paper, and board products.

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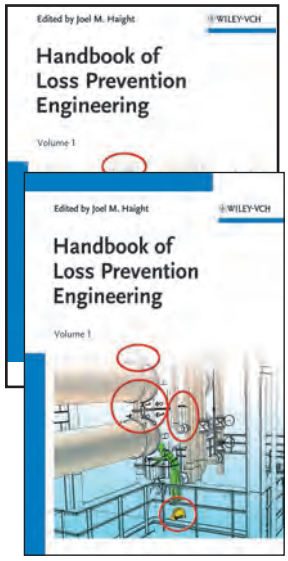

Handbook of Loss Prevention Engineering

TWO-VOLUME SET

Joel M. Haight, Editor

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

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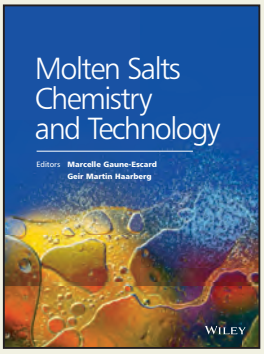

Molten Salts Chemistry and Technology

NEW

Marcelle Gaune-Escard, Geir Martin Haarberg, Editors

Purchase this work to gain a solid understanding of the properties, experimental methods, theoretical methods, and applications of high temperature molten salts and room temperature ionic liquids (collectively termed liquid salts). With a focus on sustainable processes for the production and processing of materials, *Molten Salts Chemistry and Technology* contains more than 60 chapters and is organized into seven areas: aluminum electrolysis, new processes for electrowinning, modeling and thermodynamics, high temperature experimental techniques, electrochemistry in ionic liquids, nuclear energy, and energy technology. It's an unrivalled reference for chemists, engineers, and materials scientists in academia, research, and industry.

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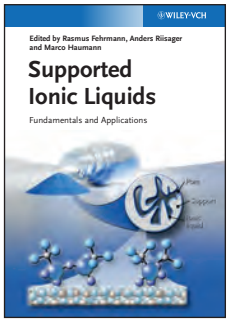

Supported Ionic Liquids

NEW

Fundamentals and Applications

Rasmus Fehrmann, Anders Riisager, Marco Haumann, Editors

A first of its kind within a very hot field of topic, *Supported Ionic Liquids* aptly explores SILP materials and their fundamentals. This debut book discusses ionic liquids, porous supports, syntheses, and characterization and features an important case study section highlighting applications within the catalytic production of bulk chemicals, fine chemicals, environmental processes, biotechnology, energy production, and gas separation. In addition, each case study features the most significant authors available, who relate the underlying research. A final section of concluding remarks speaks to perspectives and the future of the field.

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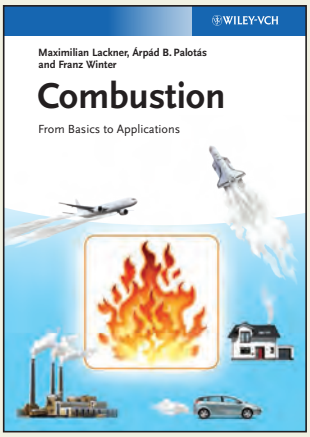

Combustion

NEW

From Basics to Applications

Maximilian Lackner, Árpád Palotás, Franz Winter

Going where no text has gone before, this book is the first to provide a concise introduction to combustion. Written in a clear didactic style, the work focuses on practical aspects rather than theory and offers an overview of the topic of equal value to students and practitioners, teaching everything that is needed to get started in the field. The experienced authors are international experts in the area and cover the most common fuels, including solids, gases, and liquids. Environmental impacts are also discussed, such that readers will be able to develop an understanding of the central environmental issues and the possibilities for more sustainable combustion.

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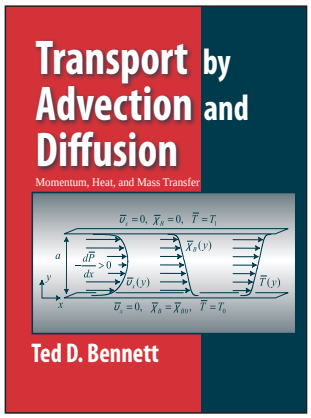

Transport by Advection and Diffusion

Ted Bennett

Bennett's *Transport by Advection and Diffusion* gives readers the analytical and numerical tools they need to aid problem solving in every topic area of the text. A sampling of those 37 topic areas includes transport with source terms, specification of transport problems, transient one-dimensional diffusion, lubrication theory, MacCormack integration, and many, many more. In fact, this text is superior in its ability to help readers develop match skills that will help them grasp the concepts necessary for success in research and education. It also improves upon an integrated approach to teaching transport phenomena and widens this to include topics such as transport in compressible flows and in open channel flows.

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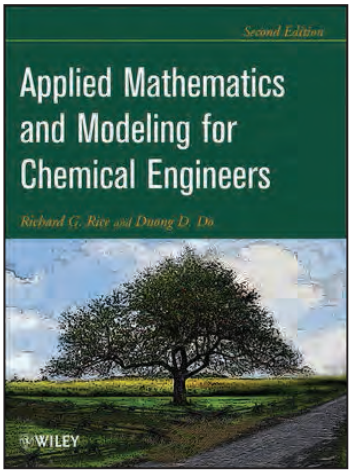


Applied Mathematics And Modeling For Chemical Engineers

NEW

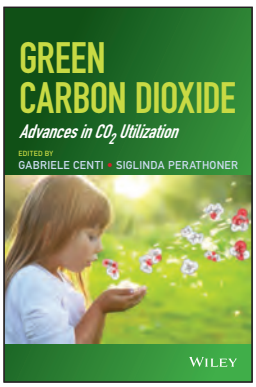
SECOND EDITION

TWO-VOLUME SET

Richard G. Rice, Duong D. Do

This second edition of the go-to reference combines the classical analysis and modern applications of applied mathematics for chemical engineers. The book introduces traditional techniques for solving ordinary differential equations (ODEs), adding new material on approximate solution methods such as perturbation techniques and elementary numerical solutions. It also includes analytical methods to deal with important classes of finite-difference equations. The last half discusses numerical solution techniques and partial differential equations (PDEs). The reader will then be equipped to apply mathematics in the formulation of problems in chemical engineering. Many worked examples—solved in the accompanying solutions manual—are included throughout.

Hardcover + Paperback Manual 505 pp 2013 ISBN 978-1-118-80485-8
€122.00/£93.50/CAD $154.00/USD $140.00



Green Carbon Dioxide

NEW

Advances in CO2 Utilization

Gabriele Centi, Siglinda Perathoner, Editors

Recycling carbon-dioxide at the source would not only go a long way toward minimizing the emissions, but would also motivate industry leaders to take a positive, proactive approach for CO2 reuse. *Green Carbon Dioxide* presents power plant engineers, process engineers, chemical engineers, electrochemists, scientists, and professors with several technologies that can be used to recycle carbon-dioxide into fossil fuel equivalent and minimize carbon dioxide emissions. The authors demonstrate how to make these conversions from alternative green energy sources, such as solar or wind-power, hydro-power or non-fossil fuel energy.

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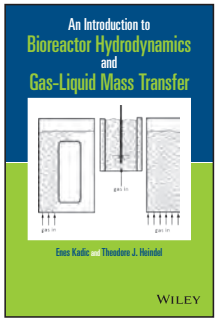

An Introduction to Bioreactor Hydrodynamics and Gas-Liquid Mass Transfer

NEW

Enes Kadic, Theodore J. Heindel

So how do you select the bioreactor that's right for the process at hand? This insightful work reviews and compares the major types of bioreactors used to produce renewable fuels, chemicals, medicines, and proteins with a discussion of the hydrodynamics and gas-liquid mass transfer operations involved. It identifies the advantages and disadvantages of each bioreactor and provides a procedure for optimal bioreactor selection based on current process needs. All common bioreactors and selected novel designs are covered and extensive summaries of available correlations are provided.

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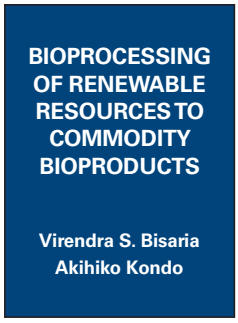

Bioprocessing of Renewable Resources to Commodity Bioproducts

NEW

Virendra S. Bisaria, Akihiko Kondo, Editors

It is universally agreed that the era of cheap fossil oil will soon end. Offering timely solutions to our current energy crisis, this work addresses the latest genetic and metabolic engineering approaches to the development of recombinant microorganisms for the production of commodity bioproducts. Specifically, it covers the processing of renewable resources such as plant biomass and the mass production of commodity chemicals and liquid fuels. Readers will benefit from the book's unique perspective concerning the problems and solutions scientists face in making a bioprocess work in commercial production.

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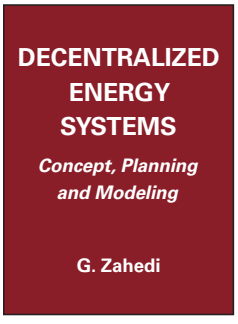

Decentralized Energy Systems

NEW

Concept, Planning and Modeling

G. Zahedi

Decentralized Energy Systems describes a systematic and integrated approach for minimizing fossil fuel dependence, use, cost of production, and environmental impact. Discussing the engineering, economical benefits, politics, and policies involved in establishing these systems, author G. Zahedi examines smaller, localized implementation of new energy technologies, including renewable energy, combined heat and power (CHP), and clean coal technologies that are emerging. The book's comprehensive approach also includes useful case studies that examine implementation in a variety of real-world situations.

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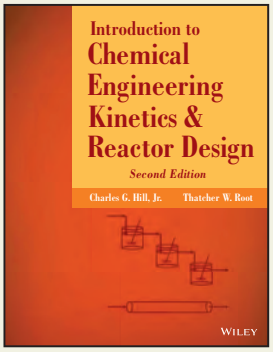


Introduction to Chemical Engineering Kinetics and Reactor Design

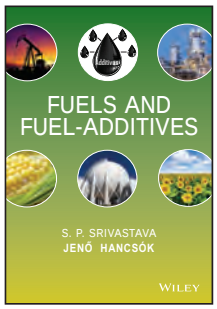
NEW

SECOND EDITION

Charles G. Hill, Jr., Thatcher W. Root

One of the most acclaimed books in the field, *Introduction to Chemical Engineering Kinetics and Reactor Design* is now in an all-new second edition, completely revised and updated to include a large number of intellectually stimulating problems (more than 80 percent of which are new). It also encompasses a wider range of chemical engineering topics, including such new areas as biological systems and nanotechnology. The book's problems are designed to underscore advances in relevant engineering software (spreadsheets such as Excel, equation solvers such as Mathcad, etc.) and the increased computer literacy of students enrolled chemical engineering programs.

Hardcover 560 pp 2014 ISBN 978-1-118-36825-1 €129.00/£100.00/CAD $164.95/USD $149.95



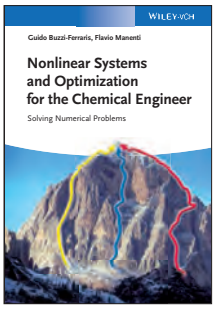
Fuels and Fuel-Additives

NEW

Som Prakash Srivastava, Jenõ Hancsók

Detailing the chemical structures and properties of fuels and fuel additives, this timely work examines the science and technology involved in the production of energy efficient and environmentally friendly fuels and the role that fuel additives play in this process. *Fuels and Fuel-Additives* is a single source guide that contains the most up-to-date coverage and fuels and their regulatory requirements, including US and EU standards in automotive emissions, fuel quality, and specifications. The book addresses alternate fuels, biofuels, antioxidants, stabilizers and corrosion inhibitors, and polymeric fuel additives.

Hardcover 378 pp 2014 ISBN 978-0-470-90186-1 €87.90/£66.95/CAD $109.95/USD $99.95



Nonlinear Systems and Optimization for the Chemical Engineer

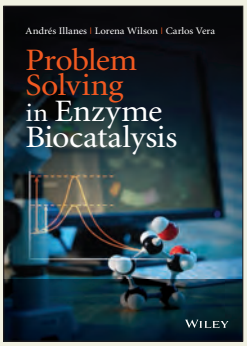
NEW

Solving Numerical Problems

Guido Buzzi-Ferraris, Flavio Manenti

This practical guide is an engineer's companion to using numerical methods for the solution of complex mathematical problems. It explains the theory behind current numerical methods and shows in a step-by-step fashion how to use them. The book focuses on optimization from experimental to large-scale processes, detailing the algorithms needed to solve real-life problems. It describes the methods, innovative techniques, and strategies that are all implemented in a well-established, freeware mathematical toolbox called BzzMath, which is developed and maintained by the authors.

Hardcover 522 pp 2014 ISBN 978-3-527-33274-8 €109.00/£90.00/CAD $149.00/USD $135.00



Problem Solving in Enzyme Biocatalysis

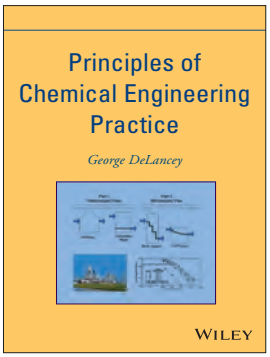
NEW

Andrés Illanes, Lorena Wilson, Carlos Vera

In order to design more efficient enzyme reactors and evaluate performance properly, sound mathematical expressions must be developed that consider enzyme kinetics, material balances, and eventual mass transfer limitations. With a focus on problem solving, each chapter of this exacting work contains abridged coverage of the subject, followed by a number of solved problems illustrating resolution procedures and the main concepts underlying them, plus supplementary questions and answers. Based on more than 50 years of teaching experience, *Problem Solving in Enzyme Biocatalysis* is a unique reference for students of chemical and biochemical engineering, as well as biochemists and chemists dealing with bioprocesses.

Hardcover 344 pp 2014 ISBN 978-1-118-34171-1

€83.90/£65.00/CAD $121.00/USD $110.00



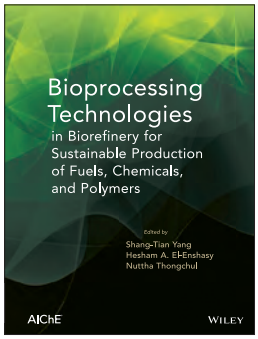
Principles of Chemical Engineering Practice

George DeLancey

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

Hardcover 456 pp 2013 ISBN 978-0-470-53674-2

€152.00/£117.00/CAD $193.00/USD $175.00

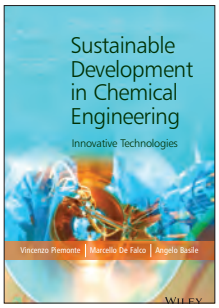


Bioprocessing Technologies in Biorefinery for Sustainable Production of Fuels, Chemicals, and Polymers

Shang-Tian Yang, Hesham El-Ensashy, Nuttha Thongchul, Editors

This book helps readers move toward large-scale, sustainable, and economical production of biofuels and bio-based chemicals. It covers biomass feedstocks; pretreatment technologies for lignocellulosic biomass; hydrolytic enzymes used in biorefineries for the hydrolysis of starch and lignocelluloses; bioconversion technologies for current and future biofuels such as ethanol, biodiesel, butanol, hydrogen, and biogas; and much more.

Hardcover 488 pp 2013 ISBN 978-0-470-54195-1 €125.00/£96.95/CAD $160.00/USD $145.00

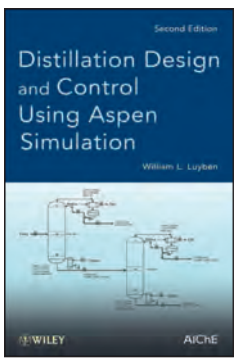


Sustainable Development in Chemical Engineering Innovative Technologies

Vincenzo Piemonte, Marcello De Falco, Angelo Basile

As the title suggests, this work examines the newest technologies for sustainable development in chemical engineering. Four sections give you the latest on the technical aspects of this technology and look into possible fields of industrial development. Energy Production covers renewable energies, innovative solar technologies, cogeneration plants, and smart grids. Process Intensification shows why it is important in the chemical and petrochemical industry, the engineering approach, and nanoparticles as a smart technology for bioremediation. Bio-based Platform Chemicals covers the production of bioethanol and biodiesel fuels, bioplastics production and biodegradability, and biosurfactants. Soil and Water Remediation examines water management and re-use and soil remediation technologies. Throughout the book there are case studies and examples of industrial processes in practice.

Hardcover 384 pp 2013 ISBN 978-1-119-95352-4 €89.90/£70.00/CAD $127.00/USD $115.00



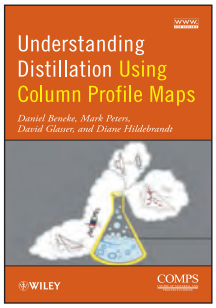
Distillation Design and Control Using Aspen Simulation

SECOND EDITION

William L. Luyben

Distillation Design and Control Using Aspen Simulation introduces the current status and future implications of this vital technology from the dual perspectives of steady-state design and dynamics. Where traditional design texts have focused mainly on the steady-state economic aspects of distillation design, William Luyben also addresses such issues as dynamic performance in the face of disturbances. New to this edition is information on the divided wall column (Petlyuk column) and carbon dioxide capture from stack gas, along with coverage of feed composition sensitivity analysis, and control structures.

Hardcover 510 pp 2013 ISBN 978-1-118-41143-8 €112.00/£86.95/CAD $143.00/USD $130.00

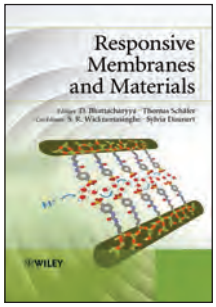


Understanding Distillation Using Column Profile Maps

Daniel Beneke, Mark Peters, David Glasser, Diane Hildebrandt

Understanding Distillation Using Column Profile Maps helps readers understand, analyze, and design distillation structures that solve common distillation problems, including distillation by simple columns, side rectifiers and strippers, multiple feed columns, and fully thermally coupled columns. In addition, the book addresses advanced topics such as reactive distillation, membrane permeation, and validation of thermodynamic models. For all these processes, the authors offer easy-to-follow design techniques, solution strategies, and insights gained using CPMs. Readers get everything they need to fully understand and use CPMs as a design tool. A companion software package lets readers reproduce examples in the book and begin designing their own distillation systems.

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

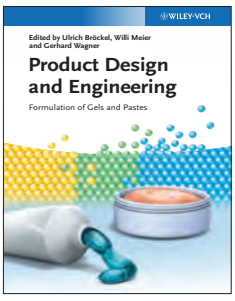


Responsive Membranes and Materials

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

The development of new multifunctional membranes and materials that respond to external stimuli, such as pH, temperature, light, and biochemical, magnetic, or electrical signals, represents a new approach to separations, reactions, or recognitions. Covering recent advances in the generation and application of responsive materials, this manual covers the development and design of responsive membranes and materials. Other topics include carbon nanotube membranes; tunable separations, reactions, and nanoparticle synthesis; responsive membranes for water treatment; biomimetic polymer gels; and much more.

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



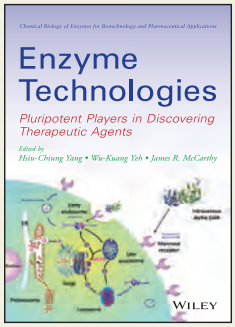
Product Design and Engineering Formulation of Gels and Pastes

NEW

Ulrich Broumluckel, Willi Meier, Gerhard Wagner, Editors

Covering the whole value chain—from product requirements and properties via process technologies and equipment to real-world applications—this reference represents a comprehensive overview of product design and engineering. The editors and majority of the authors are members of the European Federation of Chemical Engineering and they describe here the best practice in product design and production, taking in fundamentals, technologies, and applications. This volume focuses on the formulation of gels and pastes, a subject with great impact in many different sectors, such as pharmaceutical or food industry, and highlights rheological fundamentals as well as industrial applications.

Hardcover 372 pp 2013 ISBN 978-3-527-33220-5 €129.00/£105.00/CAD $193.00/USD $175.00



Enzyme Technologies

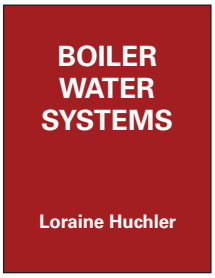
NEW

Pluripotent Players in Discovering Therapeutic Agents

Hsiu-Chiung Yang, Wu-Kuang Yeh, J. R. McCarthy, Editors

Enzyme Technologies highlights how, what, and where enzymes have become critical in pharmaceutical and biotechnology research. The book provides an overview of new developments in enzyme technology and case studies of new enzyme inhibitor drugs. It discusses enzymatic assays, including emerging assay technologies for key enzyme classes in pharmaceutical research. In addition to new developments in proteomics, it also includes two emerging technologies in life sciences, metabolomics, and preclinomics.

Hardcover 356 pp 2014 ISBN 978-0-470-28626-5 €129.00/£100.00/CAD $162.00/USD $149.95



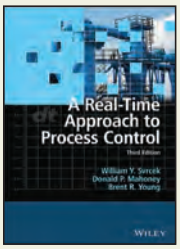
Boiler Water Systems

NEW

Loraine Huchler

With this innovative guide in hand, you can readily discern the most effective ways to operate a boiler water utility, simplify troubleshooting, and prevent outages. It offers direct how-to guidance with practical applications that are immediately useful in the plant. It explains water system technology in simple terms, presents concepts in easy-to-read lists and diagrams, and can be used for preparing training materials and developing best practices for process-related systems. It is a valuable field tool for engineers, shift supervisors, trainers, and operators dealing with deaerators, steam boiler systems, and condensate systems.

Hardcover 450 pp 2014 ISBN 978-1-118-49633-6 €169.00/£130.00/CAD $215.00/USD $195.00



A Real-Time Approach to Process Control

NEW

THIRD EDITION

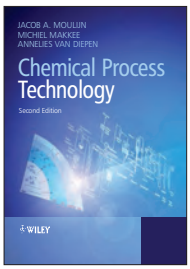
William Y. Svrcek, Donald P. Mahoney, Brent R. Young

"Provides a refreshing approach to the presentation of process analysis and control."—**The Chemical Engineer**

Assuming no prior knowledge of the subject, this thoroughly updated new edition covers the applied fundamentals of process control, from instrumentation to process dynamics, PID loops, and tuning to distillation, multi-loop, and plant-wide control. It carefully balances theory and practice by offering readings and lecture materials along with hands-on workshops that provide a virtual process with which to experiment and learn modern, real-time control strategy development. In addition, it covers the most popular dynamic simulation packages.

Hardcover 360 pp 2014 ISBN 978-1-119-99387-2 €142.00/£110.00/CAD $198.00/USD $180.00

Paperback 360 pp 2014 ISBN 978-1-119-99388-9 €51.90/£39.95/CAD $72.00/USD $65.00



Chemical Process Technology

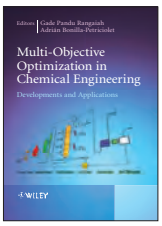
SECOND EDITION

Jacob A. Moulijn, Michiel Makkee, Annelies van Diepen

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

Hardcover 566 pp 2013 ISBN 978-1-4443-2024-4 €142.00/£110.00/CAD $176.00/USD $160.00

Paperback 566 pp 2013 ISBN 978-1-4443-2025-1 €51.90/£39.95/CAD $66.00/USD $60.00



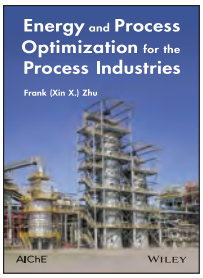
Multi-Objective Optimization in Chemical Engineering

Developments and Applications

Gade Pandu Rangaiah, Adrián Bonilla-Petriciolet, Editors

For reasons both financial and environmental, there is a perpetual need to optimize the design and operating conditions of industrial process systems in order to improve their performance, energy efficiency, profitability, safety, and reliability. However, with most chemical engineering application problems having many variables with complex inter-relationships, meeting these optimization objectives can be challenging. This is where Multi-Objective Optimization (MOO) comes in. This book provides an overview of the recent developments and applications of MOO for modeling, design, and operation of chemical, petrochemical, pharmaceutical, energy, and related processes.

Hardcover 528 pp 2013 ISBN 978-1-118-34166-7 €155.00/£120.00/CAD $215.00/USD $195.00



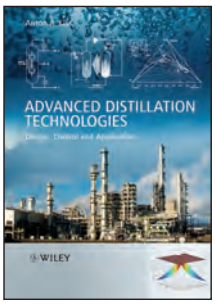
Energy and Process Optimization for the Process Industries

NEW

Frank Zhu

Based on the author's hands-on field experience, this book offers tested and proven theory, methods, and industrial applications to optimize process and use energy as efficiently as possible while meeting all production goals. With its clear and systematic approach, it enables readers to quickly realize significant reductions in energy costs for process plants and to sustain and improve those energy savings well into the future. Moreover, it helps readers choose and implement an approach that addresses the specific process conditions and production needs of their plant.

Hardcover 536 pp 2014 ISBN 978-1-118-10116-2 €99.90/£76.95/CAD $127.00/USD $115.00



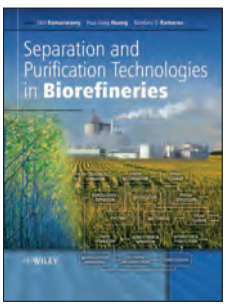
Advanced Distillation Technologies

Design, Control and Applications

Anton A. Kiss

Gain insight into integrated separations using nonconventional arrangements, including both current and future approaches and technologies. Key topics in this guide comprise major concepts in distillation technology, complex distillation arrangements, DWC design and configurations, optimal operation, controllability and advanced control strategies, industrial and pilot-scale DWC applications (in ternary separations, azeotropic distillation, extractive distillation, and reactive distillation), HIDiC design and configurations, heat-pump assisted applications, as well as equipment description (column internals, trays, packing). Coverage also includes a number of novel DWC applications relevant to industrial processes, as well as rigorous steady-state (Aspen Plus) and dynamic simulations (Aspen Dynamics, Matlab, and Simulink).

Hardcover 414 pp 2013 ISBN 978-1-119-99361-2 €129.00/£100.00/CAD $182.00/USD $165.00

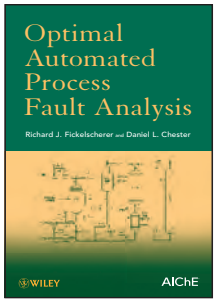


Separation and Purification Technologies in Biorefineries

Shri Ramaswamy, Huajiang Huang, Bandrau Ramarao, Editors

This book presents a comprehensive overview focused specifically on the present state, future challenges, and opportunities for separation and purification methods and technologies in biorefineries. Topics covered include: equilibrium separations, affinity-based separations, membrane based separations, solid-liquid separations, and hybrid/integrated reaction-separation systems.

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

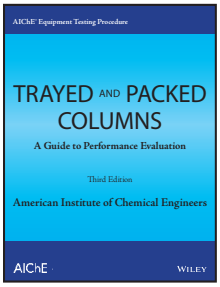


Optimal Automated Process Fault Analysis

Richard J. Fickelscherer, Daniel L. Chester

This book presents the method of minimal evidence (MOME), a model-based diagnostic strategy that facilitates the development and implementation of optimal automated process fault analyzers. The authors demonstrate how MOME is used to diagnose single and multiple fault situations, determine the strategic placement of process sensors, and distribute fault analyzers within large processing systems. The book concludes with a summary of the lessons learned by employing FALCONEER™ IV in actual process applications, including the benefits of "intelligent supervision" of process operations.

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



AIChE Equipment Testing Procedure - Trayed and Packed Columns

NEW

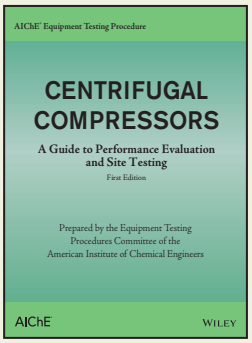
A Guide to Performance Evaluation

THIRD EDITION

AIChE

The latest edition of this trusted guide combines and updates the best available field knowledge on both trayed and packed distillation columns. In one complete, user-friendly volume, it presents a compilation of techniques, rather than a single set of compulsory steps, allowing readers to select the procedure that best suits their needs. With its engineer-tested procedures and detailed explanations, this third edition provides chemical engineers, plant managers, and other professionals with first-class advice on assessing and measuring performance for a variety of distillation column types in multiple applications.

Paperback 152 pp 2014 ISBN 978-1-118-62771-6 €43.90/£33.50/CAD $54.95/USD $49.95



AIChE Equipment Testing Procedure - Centrifugal Compressors

A Guide to Performance Evaluation and Site Testing

AIChE

This addition to AIChE's long-running Equipment Testing Procedure series, *Centrifugal Compressors: A Guide to Performance Evaluation and Site Testing,* offers readers helpful advice they can use to assess and measure the performance of a key component in a number of chemical process operations. From petrochemical refining and natural gas production to air separation plants, efficient, safe and environmentally sound operations depend on reliable performance by centrifugal compressors. The book presents a step-by-step approach to preparing for, planning, executing, and analyzing tests of centrifugal compressors, with an emphasis on methods that can be conducted on-site with an acknowledgement of the strengths and limitations of each of these methods.

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

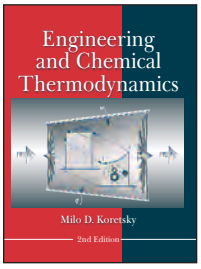
Guidelines for Independent Protection Layers and Initiating Events

NEW

Center for Chemical Process Safety (CCPS)

This publication provides you with the appropriate treatment and requirements applicable to equipment design, administrative procedures, or other credits that are treated as an independent protection layer from a layer of protection analysis (LOPA) perspective. This approach addresses issues such as how to ensure the effectiveness and maintain reliability for administrative controls or inherently safer, more passive concepts. It also describes how the fields of human reliability analysis, fault tree analysis, inherent safety, audits and assessments, maintenance, and emergency response relate to LOPA and SIS.

Hardcover 150 pp 2014 ISBN 978-0-470-34385-2 €69.90/£53.50/CAD $87.95/USD $79.95



Engineering and Chemical Thermodynamics

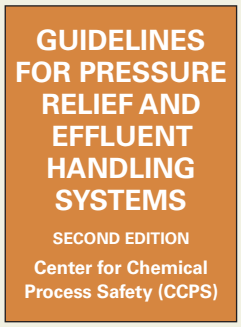
NEW

SECOND EDITION

Milo D. Koretsky

Chemical engineers face the challenge of learning the difficult concept and application of entropy and the Second Law of Thermodynamics. Offering a visual approach and qualitative discussions of the role of molecular interactions, this author helps readers understand and visualize thermodynamics. Highlighted examples show how the material is applied in the real world. Expanded coverage includes biological content and examples, the Equation-of-State approach for both liquid and vapor phases in VLE, and the practical side of the Second Law. Engineers will then be able to use this resource as the basis for more advanced concepts.

Hardcover 704 pp 2013 ISBN 978-0-470-25961-0 €225.00/£174.99/CAD $174.95/USD $230.95



Guidelines for Pressure Relief and Effluent Handling Systems

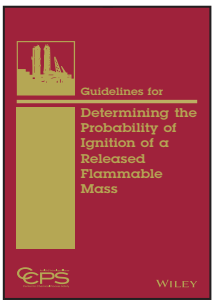
NEW

SECOND EDITION

Center for Chemical Process Safety (CCPS)

This in-depth guide shows readers how they can design and rate emergency relief systems, including instruction in making detailed pressure drop calculations that take into account mixed vapor-liquid streams, non-steady-state pressure driving force, and reacting streams so that engineers can select and properly install relief systems. It covers all of the state-of-the-art design methodologies from the Design Institute for Emergency Relief Systems (DIERS®) as well as applicable API standards. An enclosed CD includes the CCFlow suite of design tools along with new Superchems for DIERS Lite software.

Hardcover 608 pp 2014 ISBN 978-0-470-76773-3 €132.00/£100.50/CAD $164.95/USD $149.95



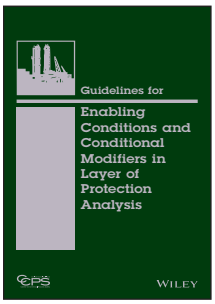
Guidelines for Determining the Probability of Ignition of a Released Flammable Mass

NEW

Center for Chemical Process Safety (CCPS)

Augmented with an estimating tool spreadsheet, *Guidelines for Determining the Probability of a Released Flammable Mass* converts a best guess into a calculated value based on available information and current technology. As such, the text outlines a technology-based approach to deriving the probability that a flammable mass will find an ignition source and ignite. The result is a trove of valuable information to be used in the development of a facility's Emergency Response Plan, information that may be of significant interest to insurers and those insured.

Hardcover 264 pp 2014 ISBN 978-1-118-23053-4 €87.90/£66.95/CAD $109.95/USD $99.95



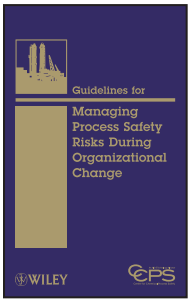
Guidelines for Enabling Conditions and Conditional Modifiers in Layer of Protection Analysis

NEW

Center for Chemical Process Safety (CCPS)

This guide clarifies key concepts and reinforces the limitations and the requirements of LOPA. The aim is to provide examples of CMs and ECs and to define the protocols that must be followed for their use. The book presents a brief overview of Layer of Protection Analysis (LOPA) and its variations, and summarizes terminology used for evaluating scenarios in the context of a typical incident sequence. It defines and illustrates the most common types of ECs and CMs and shows how they interrelate to risk criteria, along with their application in other methods.

Hardcover 136 pp 2013 ISBN 978-1-118-77793-0 €77.90/£60.50/CAD $98.95/USD $89.95

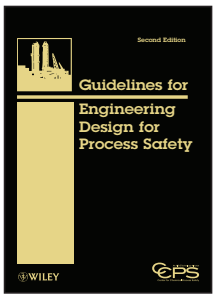


Guidelines for Managing Process Safety Risks During Organizational Change

Center for Chemical Process Safety (CCPS)

Practical and readily implementable, the guidelines detailed in this book will help you develop an effective organizational change management (OCM) system for your place of work, no matter the scale. Included are best-practice examples of OCM systems drawn from CCPS-member companies and industry studies. The guide also offers information on how to augment existing management of change (MOC) systems or how to develop a separate OCM system. A sampling of major topic areas includes the modification of working conditions, personnel changes, task allocation changes, and much, much more. Real-world case studies and references to other supporting works further enhance the value of this spot-on offering.

Hardcover 264 pp 2013 ISBN 978-1-118-37909-7 €57.90/£43.95/CAD $109.95/USD $99.95



Guidelines for Engineering Design for Process Safety

SECOND EDITION

Center for Chemical Process Safety (CCPS)

This updated version of one of the most popular and widely used CCPS books provides plant design engineers, facility operators, and safety professionals with essential information on selected topics of interest. Key areas in the second edition include inherently safer design, specifically concepts for design of inherently safer unit operations and safety instrumented systems and layer of protection analysis. This book also provides an extensive bibliography to related publications and topic-specific information, as well as key information on failure modes and potential design solutions.

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

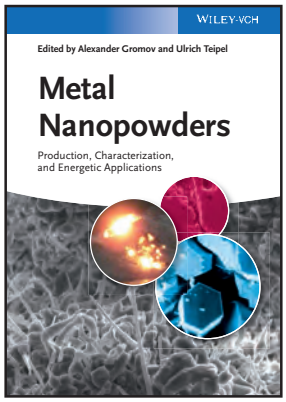
Guidelines for Evaluating Process Plant Buildings for External Explosions, Fires, and Toxic Releases

SECOND EDITION

Center for Chemical Process Safety (CCPS)

The siting of permanent and temporary buildings in process areas requires careful consideration of the potential effects of explosions and fires arising from the accidental release of flammable materials. This book is a single-source reference that explains the American Petroleum Institute's permanent and temporary building recommended practices and shows how to implement them. The second edition highlights updated standards. Practical and easy to use, this reliable guide is invaluable in implementing safe building practices.

Hardcover 232 pp 2012 ISBN 978-0-470-64367-9 €99.90/£76.95/CAD $132.00/USD $120.00



Metal Nanopowders

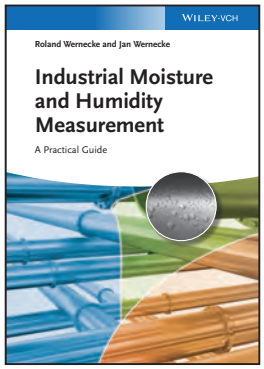
NEW

Production, Characterization, and Energetic Applications

Alexander Gromov, Ulrich Teipel, Editors

Metal nanopowders can be found in sunscreens in the form of titanium oxides that protect people from sun damage, in personal care products as odor eaters and germicides, and in pharmaceuticals in which their strong antimicrobial activities come in handy. Written with both postgraduate students and researchers in mind, this reference covers the chemistry behind metal nanopowders, including their production, characterization, oxidation, and combustion. Contributions from renowned scientists working in the field detail the practical applications of metal nanopowders in technologies and in scale-up processes. They also address the various safety aspects surrounding the handling and storage of these substances.

Hardcover 496 pp 2014 ISBN 978-3-527-33361-5
€139.00/£115.00/CAD $209.00/USD $190.00



Industrial Moisture and Humidity Measurement

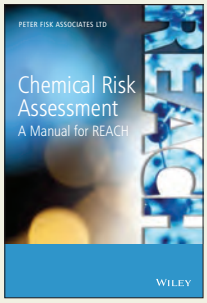
NEW

A Practical Guide

Roland Wernecke, Jan Wernecke

Moisture analysis entails a variety of methods for measuring high levels of moisture as well as trace amounts in solids, liquids, or gases. Written by experts with over 20 years of experience in the field, this one-stop guide covers all aspects of these methods, including the whys, wherefores, and a wealth of practical know-how. As such, it includes guidelines on the installation, realization of standards for absolute and relative humidity, verification and traceability measurements, equipment calibration methods, and the latest research developments. Containing numerous case studies, this practical guide serves the needs of those working in the industry, tasked with performing or developing new techniques and processes for moisture and humidity measurements.

Hardcover 504 pp 2014 ISBN 978-3-527-33177-2
€139.00/£115.00/CAD $209.00/USD $190.00



Chemical Risk Assessment

NEW

A Manual for REACH

Peter Fisk

Before you can use or place chemicals in the European Union market, you have to meet certain standards dictated by REACH risk assessments. This guide will tell you how to successfully do so. Within the book, the scientific processes that underpin the policy are explained in a practical way. It also includes coverage of techniques that will help solve the problems of using potentially risky and hazardous chemicals by using less hazardous alternatives and green chemistry. It also compares the risks of using the most hazardous substances with the social and economic benefits of their use.

Hardcover 418 pp 2014 ISBN 978-1-119-95368-5 €83.90/£65.00/CAD $109.95/USD $99.95

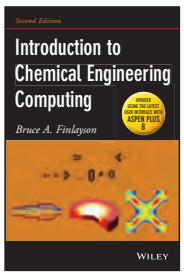
REACH Compliance —The Great Challenge for Globally Acting Enterprises

NEW

Susanne Kamptmann

This book examines not only the technicalities of the REACH process, but also directly addresses the resulting business risks and business solutions. *REACH Compliance* delivers essential information on how to successfully run a business in full compliance with the rules and regulations of REACH. Author Susanne Kamptmann has assembled the key knowledge needed to help practitioners and chemists successfully run a business under REACH, distilling thousands of pages of official REACH documentation, and incorporating experiences from different-sized enterprises in a global context.

Hardcover 304 pp 2014 ISBN 978-3-527-33316-5 €89.00/£75.00/CAD $138.00/USD $125.00



Introduction to Chemical Engineering Computing

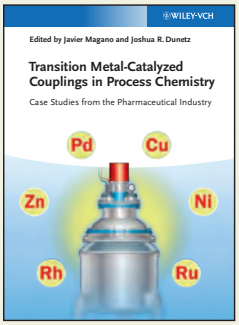
NEW

SECOND EDITION (UPDATE)

Bruce A. Finlayson

Introduction to Chemical Engineering Computing shows readers the kinds of problems they will have to solve, the types of computer programs needed to solve these problems, and how they ensure that the problems have been solved correctly. This indispensable text features Excel, MATLAB®, FEMLAB, and Aspen 8.0, the instructions for which have been updated to the latest user interface that uses a ribbon design instead of pull-down menus. You get step-by-step instructions, numerous examples, and comprehensive explanations for each problem and program.

Paperback 402 pp 2014 ISBN 978-1-118-88831-5 €53.90/£40.50/CAD $65.95/USD $59.95



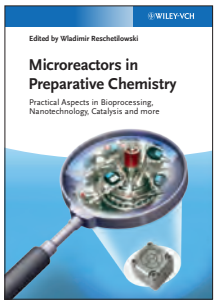
Transition Metal-Catalyzed Couplings in Process Chemistry

Case Studies from the Pharmaceutical Industry

Javier Magano, Joshua R. Dunetz, Editors

This one-stop reference source is the first on this new and exciting technology to focus on case studies of large-scale industrial applications, presenting information otherwise available only to insiders. Authors from Pfizer, Merck, DSM, Novartis, Amgen, and Astra Zeneca, among others, use case studies to showcase project evolution from inception to early and late development, including commercial routes where applicable. Each case study details at least one transition metal-catalyzed cross-coupling step, with special emphasis on lessons learned from their implementation. Of great interest to chemists working in the pharmaceutical, agrochemical, and fine chemical industries, as well as those in academia.

Hardcover 401 pp 2013 ISBN 978-3-527-33279-3 €139.00/£115.00/CAD $209.00/USD $190.00



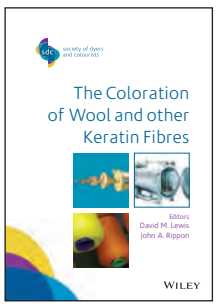
Microreactors in Preparative Chemistry

Practical Aspects in Bioprocessing, Nanotechnology, Catalysis and more

Wladimir Reschetilowski, Editor

Topics in this work cover three main areas. It first details the knowledge concerning the preparative chemistry needed to influence the so-called microeffects on the reaction procedure and mass and heat transfer. Next, practical aspects of the synthesis of various basic chemicals and fine chemicals, polymers, bioproducts, and nanoparticles are discussed, with important advice for both the researcher and industrial chemist included. Finally, reaction examples in microreactors are given together with universally applicable correlations and transfer potential on related reaction systems.

Paperback 352 pp 2013 ISBN 978-3-527-33282-3 €79.00/£65.00/CAD $121.00/USD $110.00

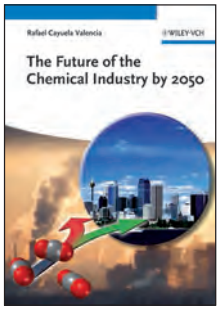


The Coloration of Wool and Other Keratin Fibres

David M. Lewis, John A. Rippon, Editors

Heighten your understanding of the complex interplay between wool fiber chemistry, morphology, and the coloration processes. Published in partnership with the Society of Dyers and Colourists (SDC), this book is an exemplary guide to the chemistry and chemical processes involved in wool dyeing, printing, preparation, and finishing. Among many pertinent topics, it covers the coloration of fabrics containing wool, including a variety of wool blends. It also addresses the chemistry of the various types of dyes utilized in coloring wool and examines the practical application of dyes to wool in all its forms.

Hardcover 464 pp 2013 ISBN 978-1-119-96260-1 €129.00/£100.00/CAD $182.00/USD $165.00

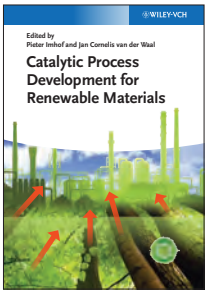


The Future of the Chemical Industry by 2050

Rafael Cayuela Valencia

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

Hardcover 331 pp 2013 ISBN 978-3-527-33257-1 €59.00/£50.00/CAD $94.00/USD $85.00

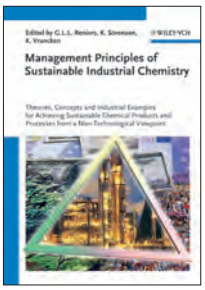


Catalytic Process Development for Renewable Materials

Pieter Imhof, Jan Cornelis van der Waal, Editors

Green, clean, and renewable are the hottest keywords for catalysis and industry. This is the first book to combine the fields of advanced experimentation and catalytic process development for biobased materials in industry. It describes the entire workflow from idea, approach, research, and process development, right up to commercialization. A large part of the book is devoted to the use of advanced technologies and methodologies like high throughput experimentation, as well as reactor and process design models, with a wide selection of real-life examples included at each stage. The contributions are from authors at leading companies and institutes, providing firsthand information and knowledge that is hard to find elsewhere.

Hardcover 420 pp 2013 ISBN 978-3-527-33169-7 €139.00/£115.00/CAD $209.00/USD $190.00



Management Principles of Sustainable Industrial Chemistry

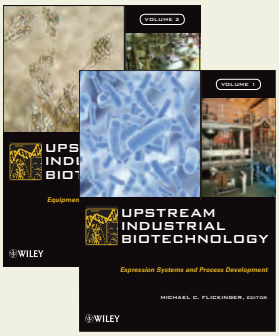
Theories, Concepts and Industrial Examples for Achieving Sustainable Chemical Products and Processes from a Non-Technological Viewpoint

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

Exploring sustainability from the perspectives of engineering and multiple scientific disciplines, this book incorporates the concepts of intergenerational equity and ecological capabilities. All the while, it promotes scientific rigor for the analysis of sustainability and explains the use of appropriate metrics to determine the comparative merits of alternatives. The chapters are organized around the key nontechnological themes of sustainable industrial chemistry and provide an overview of the managerial principles that can enhance sustainability in the chemicals sector. It is your one-stop guide to greener, cleaner, more economically viable and efficient chemical production.

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

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



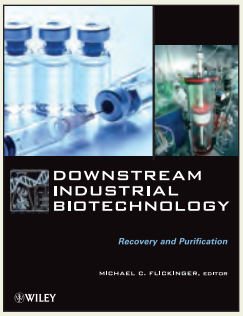
Upstream Industrial Biotechnology

TWO-VOLUME SET

Michael C. Flickinger, Editor

Leveraging the combined knowledge of scores of industry professionals from around the world, these two volumes contain an incredible depth of industry-relevant process information that can quickly be accessed and applied when creating a new upstream platform for accelerating time-to-market for products derived from DNA and living microbes, cells, or transgenic mammals. Moreover, methods for calibrating bioreactors for oxygen transfer, cell illumination, mixing, shear, foam formation, design of aseptic sampling systems, culture fluid rheology, and effective sterilization/decontamination are explained. Also, methods are included for Process Analytical Technologies (PAT) as well as upstream cGMP.

Hardcover 1854 pp 2013 ISBN 978-1-118-13123-7 €430.00/£330.00/CAD $435.00/USD $495.00



Downstream Industrial Biotechnology

Recovery and Purification

Michael C. Flickinger, Editor

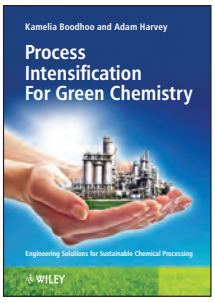
An obvious companion volume to *Upstream Industrial Biotechnology,* this work shows readers how they can best align upstream and downstream processes and eliminate or combine downstream unit operations so as to minimize the number of process steps and maximize product recovery at a specified concentration and purity. You also get critical information on large-scale equipment design, fluid transfer systems, and details on many types of industrial bioseparation equipment. Facility design, facility validation, clean-in-place (CIP), and sterilization-in-place (SIP) methods—all vital to meet cGMPS and licensing requirements—are also among the many practical considerations covered here.

Hardcover 872 pp 2013 ISBN 978-1-118-13124-4 €215.00/£167.00/CAD $275.00/USD $250.00

Buy the Three-Volume Set and SAVE!

Purchase the two-volume *Upstream Industrial Biotechnology* and *Downstream Industrial Biotechnology* together and save. Offer void in conjunction with any other discount or offer, including any mentioned in this catalog.

Set 2013 ISBN 978-1-118-13125-1 €450.00/£343.00/CAD $567.00/USD $515.00



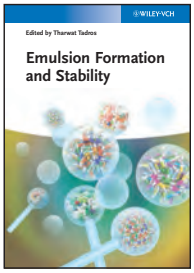
Process Intensification Technologies for Green Chemistry

Engineering Solutions for Sustainable Chemical Processing

Kamelia Boodhoo, Adam Harvey, Editors

The successful implementation of greener chemical processes relies not only on the development of more efficient catalysts for synthetic chemistry, but also, and as importantly, on the development of reactor and separation technologies that can deliver enhanced processing performance in a safe, cost-effective, and energy efficient-manner. Process intensification has emerged as a promising method for effectively tackling the challenges of significant process enhancement with the potential of diminishing environmental impact. Following an introduction to process intensification and the principles of green chemistry, this book presents a number of intensified technologies and includes case studies to illustrate their application to green chemical processes.

Hardcover 430 pp 2013 ISBN 978-0-470-97267-0 €129.00/£100.00/CAD $164.95/USD $149.95

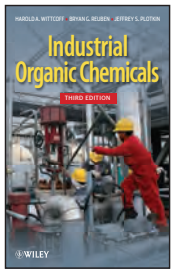


Emulsion Formation and Stability

Tharwat F. Tadros, Editor

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

Hardcover 272 pp 2013 ISBN 978-3-527-31991-6 €109.00/£90.00/CAD $154.00/USD $140.00



Industrial Organic Chemicals

THIRD EDITION

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

Learn how the majority of industrial organic chemicals and polymers are derived from seven major building blocks produced from petroleum and natural gas. You'll get quick access to the chemistry of these building block chemicals and their derivatives, and how they are manufactured, as well as their uses and economic importance, and the associated environmental concerns. The emergence of new companies such as INEOS, Formosa Plastics, LyondellBasell, and SABIC is followed, as is coverage of the growth of the chemical industry in China, India, Middle East, and Russia. A new "Green" chapter that covers renewables, chemicals, and fuels is included.

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

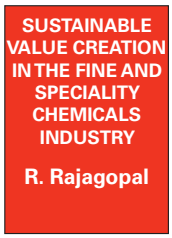
Responsible Innovation

Managing the Responsible Emergence of Science and Innovation in Society

Richard Owen, John Bessant, Maggy Heintz, Editors

Opening with a review of the current landscape of innovation, subsequent chapters in this text offer perspectives on the emerging concept of responsible innovation and its historical foundations, including key elements of a responsible innovation approach and examples of practical implementation. Written in a constructive and accessible way it includes chapters on innovation and its management in the 21st century, concepts of future-oriented responsibility as an underpinning philosophy, and fresh perspectives on responsible innovation in finance, ICT, geoengineering, and nanotechnology. The book combines research from diverse fields to address the question, How do we ensure the responsible emergence of science and innovation in society?

Hardcover 306 pp 2013 ISBN 978-1-119-96636-4 €119.00/£90.00/CAD $160.00/USD $145.00
Paperback 306 pp 2013 ISBN 978-1-119-96635-7 €51.90/£39.95/CAD $72.00/USD $65.00



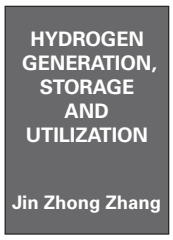
Sustainable Value Creation in the Fine and Speciality Chemicals Industry

NEW

R. Rajagopal

By examining the combination of business, scientific, and technical issues that need to be addressed in order to achieve sustainable growth in the fine and specialty chemicals industry, this groundbreaking book hands chemists and chemical engineers a tool kit they can use to design and develop economically, environmentally, and socially sustainable practices. Written by an author with extensive experience in the specialty chemical business—combined with practical experience in manufacturing, R&D, chemical consulting and market research—it includes a number of industrial case studies from major international chemical companies involved in the fine and specialty chemicals sector.

Hardcover 332 pp 2014 ISBN 978-1-118-53967-5 €119.00/£90.00/CAD $154.00/USD $140.00



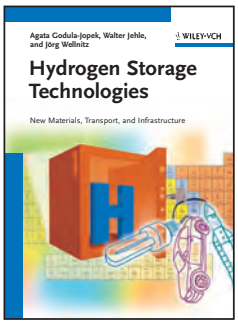
Hydrogen Generation, Storage and Utilization

NEW

Jin Zhong Zhang

The only book of its kind to cover all three important aspects of hydrogen generation, storage, and utilization, this unique guide focuses on the most common methods as well as newest approaches. It examines both the fundamentals and applications of hydrogen generation, including its utilization in the petroleum, chemical, metallurgical, physics, and manufacturing fields. It explains hydrogen generation using solar, photoelectrochemical, thermochemical, and fermentation methods. And it explores the storage of hydrogen based on metal hydrides, hydrocarbons, high-pressure compression, and cryogenics.

Hardcover 208 pp 2014 ISBN 978-1-118-14063-5 €105.00/£80.00/CAD $132.00/USD $120.00



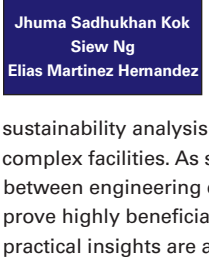
Hydrogen Storage Technologies

New Materials, Transport, and Infrastructure

Agata Godula-Jopek, Walter Jehle, Joerg Wellnitz

Explore current and possible future hydrogen storage technologies. Taking into consideration environmental, economical, and safety aspects, as well as presenting infrastructure requirements, a comparison of the different storage technologies is included, ranging from storage of pure hydrogen in different states, via chemical storage, right up to new materials already under development.

Hardcover 264 pp 2012 ISBN 978-3-527-32683-9 €109.00/£90.00/CAD $187.00/USD $170.00



Biorefineries and Chemical Processes

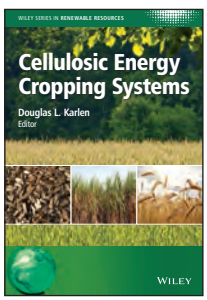
NEW

Design, Integration and Sustainability Analysis

Jhuma Sadhukhan, Kok Siew Ng, Elias Martinez Hernandez

As the range of feedstocks, process technologies, and products expands, the manufacturing systems that comprise biorefineries will become increasingly complicated. Process integration and sustainability analysis will become vital to the design of these complex facilities. As such, this guide, which bridges the gap between engineering design and sustainability assessment, will prove highly beneficial to anyone involved in the industry. Its practical insights are augmented with a bevy of comprehensive teaching materials, exercises based on industrially relevant systems (complete with worked solutions), and design projects suitable for advanced chemical engineering students.

Paperback 636 pp 2014 ISBN 978-1-119-99086-4 €97.90/£75.00/CAD $121.00/USD $110.00



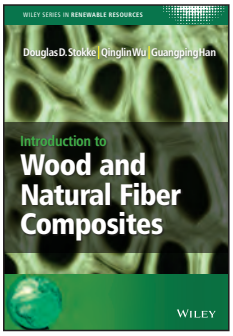
Cellulosic Energy Cropping Systems

NEW

Douglas L. Karlen, Editor

Learn how cellulosic energy crops—as opposed to sugar, starch, or oil crops—can be sustainably produced and converted to energy: liquid fuels or electricity. *Cellulosic Energy Cropping Systems* explains how these crops can be adapted to different climates and soils, planting procedures and requirements, management, harvesting procedures, and end uses. The book presents background information on potential cellulose feedstocks, reviews critical logistical issues associated with both herbaceous and woody feedstocks, and discusses bringing cellulose energy technology from the research to market.

Hardcover 400 pp 2014 ISBN 978-1-119-99194-6 €129.00/£100.00/CAD $154.00/USD $140.00

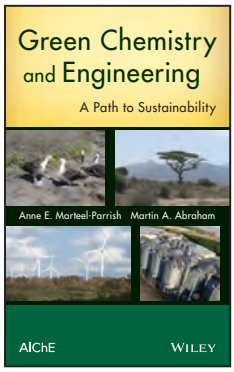


Introduction to Wood and Natural Fiber Composites

Christian V. Stevens, Series Editor
Douglas D. Stokke, Qinglin Wu, Guangping Han

Introduction to Wood and Natural Fiber Composites brings together widely scattered information concerning fundamental concepts and technical applications that are essential to the manufacture of wood and natural fiber composites. The topics addressed include basic information on the chemical and physical composition of wood and other lignocellulosic materials, the behavior of these materials under thermocompression processes, fundamentals of adhesion, and specific adhesive systems used to manufacture composite materials. Readers also get an overview of the industrial technologies used to manufacture major product categories. The book concludes with a chapter on the burgeoning field of natural fiber-plastic composites.

Hardcover 314 pp 2014 ISBN 978-0-470-71091-3
€89.90/£70.00/CAD $109.95/USD $99.95



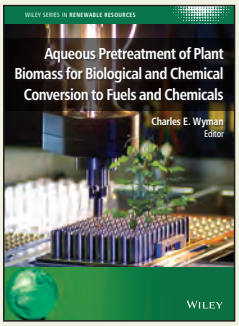
Green Chemistry and Engineering

A Pathway to Sustainability

Anne E. Marteel-Parrish, Martin A. Abraham

Although many were skeptical of the green chemistry movement at first, it has become a multimillion-dollar business. In preventing the creation of hazardous wastes, laboratories and corporations can save millions in clean up efforts and related health costs. This book supplies students with concepts commonly taught in undergraduate general chemistry and engineering courses, but with a green perspective. It is unique in presenting a discussion of green chemistry and engineering from first principles—not as an afterthought. Real-world examples show creative problem solving based on the latest issues.

Hardcover 376 pp 2013 ISBN 978-0-470-41326-5
€77.90/£60.50/CAD $61.00/USD $89.95

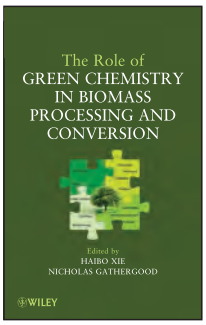


Aqueous Pretreatment of Plant Biomass for Biological and Chemical Conversion to Fuels and Chemicals

Christian V. Stevens, Series Editor
Charles E. Wyman, Editor

Aqueous Pretreatment of Plant Biomass for Biological and Chemical Conversion to Fuels and Chemicals affords readers a comprehensive overview of current aqueous pretreatment technologies for cellulosic biomass, highlighting the fundamental chetry and biology of each method, key attributes and limitations, and opportunities for future advances. A partial listing of topics therein includes the composition and structure of biomass, and recalcitrance to conversion; the fundamentals of biomass pretreatment at low, neutral, and high pH; experimental pretreatment systems from multiwell plates to pilot plant operations; and much, much more.

Hardcover 566 pp 2013 ISBN 978-0-470-97202-1 €155.00/£120.00/CAD $176.00/USD $160.00



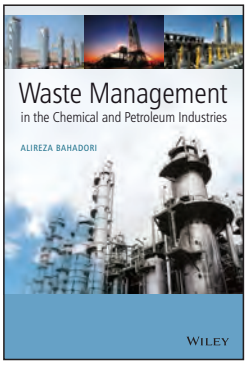
The Role of Green Chemistry in Biomass Processing and Conversion

NEW

Haibo Xie, Nicholas Gathergood

Get the basic knowledge of biopolymers through a score of methods and solutions to integrate green chemistry that will lead to cleaner burning fuels. You'll cover recent advances on homogenous, heterogeneous catalytic system and biocatalysis for biomass conversion and the assessment of environmental and ecotoxicological effects of bioenergy and ionic liquids platforms, which is especially important to biorefinery manufacturing companies and researchers interested in chemical aspects of clean technology.

Hardcover 496 pp 2013 ISBN 978-0-470-64410-2 €109.00/£83.50/CAD $138.00/USD $125.00

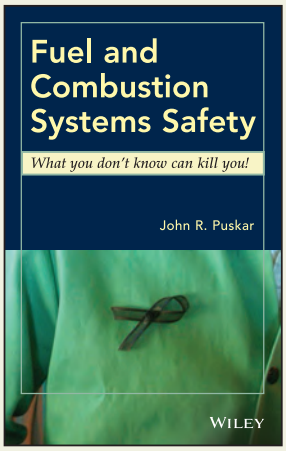


Waste Management in the Chemical and Petroleum Industries

Alireza Bahadori

Increasingly, the need to produce chemical and petroleum products without pollution is the preferred model for those industries, and the strategy of waste minimization is seen as the best way forward. Covering the essentials of treatment, recovery, and disposal of waste, as well as the requirements for process design and engineering of equipment and facilities in the chemical and petroleum industries, this book includes chapters on wastewater treatment, physical unit operations, chemical treatment, biological treatment, wastewater treatment, and more.

Hardcover 348 pp 2013 ISBN 978-1-118-73175-8 €129.00/£100.00/CAD $171.00/USD $155.00



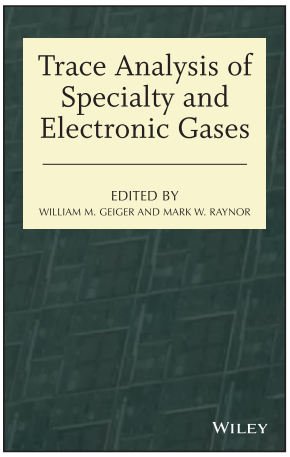
Fuel and Combustion Systems Safety

What You Don't Know Can Kill You!

John R. Puskar

Filling the gap between a highly technical text and a basic-concepts book, *Fuel and Combustion Systems Safety* provides a clear understanding of safety considerations in an industrial combustion system. You get precise direction in regard to the testing of various components, which can be used to develop a routine testing procedure. With case studies of explosions through the years, as well as a section on systems hazards and hazard recognition, the book advances the cause of fuel and combustion system safety for those who are not involved in the field on a day-to-day basis.

Hardcover 346 pp 2014 ISBN 978-0-470-53360-4
€77.90/£60.50/CAD $95.95/USD $89.95

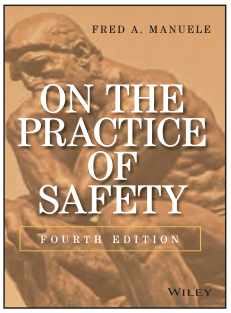


Trace Analysis of Specialty and Electronic Gases

William M. Geiger, Mark W. Raynor, Editors

Featuring contributions from leading analytical and industrial chemists, *Trace Analysis of Specialty and Electronic Gases* covers a wide range of practical industrial applications. The book begins with the historical development of gas analysis. It focuses on particular subjects or techniques such as metals sampling and ICP-MS analysis, improvements in FTIR spectroscopy, water vapor analysis techniques, gas chromatography columns, and more. Lastly, the book examines gas mixtures and standards that are critical for instrument calibration. With its thorough step-by-step guidance, *Trace Analysis of Specialty and Electronic Gases* lets researchers take full advantage of the latest advances in gas analysis.

Hardcover 386 pp 2013 ISBN 978-1-118-06566-2
€87.90/£66.95/CAD $109.95/USD $99.95



On the Practice of Safety

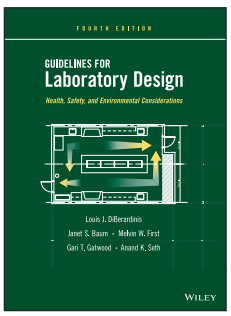
FOURTH EDITION

Fred A. Manuele

"An excellent piece of work."
—Safety Health Practitioner

The fourth edition of *On the Practice of Safety* makes it possible for readers to master all the core subjects and practices that today's safety professionals need to master in order to provide optimal protection for their organizations' property and personnel. Like the previous editions, each chapter is a self-contained unit, making it easy for readers to focus on select topics of interest. Thoroughly revised and updated, this fourth edition reflects the latest research and safety practice standards. Readers will find new chapters dedicated to the management of change and pre-job planning, indirect-to-direct accident cost ratios, leading and lagging indicators, and much more.

Hardcover 616 pp 2013 ISBN 978-1-118-47894-3 €87.90/£66.95/CAD $109.95/USD $99.95



Guidelines for Laboratory Design

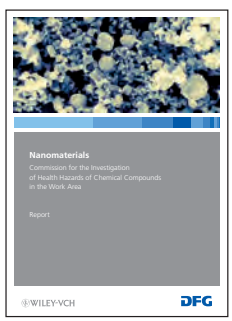
Health, Safety, and Environmental Considerations

FOURTH EDITION

Louis J. DiBerardinis, Janet S. Baum, Melvin W. First, Gari T. Gatwood, Anand K. Seth

Now in its fourth edition, *Guidelines for Laboratory Design* continues to help readers design labs that make it possible to conduct scientific investigations in a safe and healthy environment. The book identifies all of the professionals who are critical to a successful lab design, discussing the roles of architects, engineers, health and safety professionals, and laboratory researchers. It gives the design team the information it needs to ask the right questions and then determine the best design, while complying with current regulations and best practices.

Hardcover 552 pp 2013 ISBN 978-0-470-50552-6 €129.00/£100.00/CAD $164.95/USD $149.95



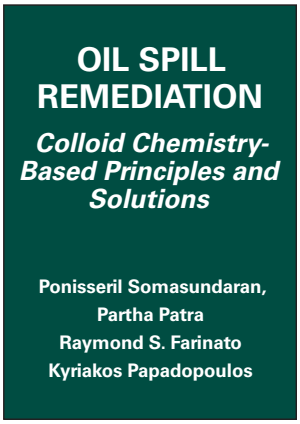
Nanomaterials

Novel Approaches

Deutsche Forschungsgemeinschaft (DFG)

The Deutsche Forschungsgemeinschaft's Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (MAK Commission) recognized the importance of a scientifically based approach to the risk assessment of nanoparticles in the workplace and in 2009 established the ad-hoc working group Nanoparticles. Its task was to review the current database available for risk assessment for nanoparticles and to define open questions for future research. This report contains overviews of the important toxicological aspects of nanoparticles and a summary of the discussions that took place during the meetings of the Nanoparticles working group.

Paperback 100 pp 2013 ISBN 978-3-527-33571-8 €49.90/£45.00/CAD $76.95/USD $69.95



Oil Spill Remediation

NEW

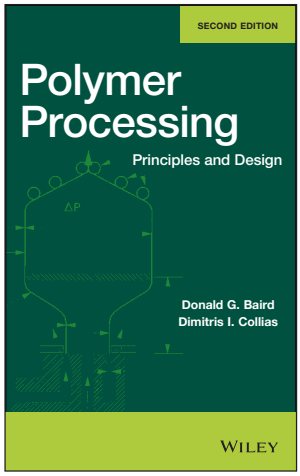
Colloid Chemistry-Based Principles and Solutions

Ponisseril Somasundaran, Partha Patra, Raymond S. Farinato, Kyriakos Papadopoulos

The first book to address oil spill remediation from the perspective of physicochemical and colloidal science, *Oil Spill Remediation, Colloid Chemistry-Based Principles and Solutions,* discusses current and emerging detergents used in clean-ups. Chapters from leading scientists, researchers, engineers, and policy makers present chemical engineers, physical chemists, petroleum engineers, ecotoxicologists, environmental engineers, environmental researchers, geologists, geochemists, and mineral processors with new insights into the possible impact of oil spills on ecosystems as well as preventive measures.

Hardcover 440 pp 2014 ISBN 978-1-118-20670-6

€129.00/£100.00/CAD $164.95/USD $149.95



Polymer Processing

NEW

Principles and Design

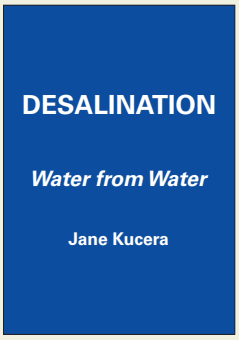
SECOND EDITION

Donald G. Baird, Dimitris I. Collias

Emphasizing fundamental concepts that allow a student, novice, or practicing engineer to make practical design decisions, *Polymer Processing: Principles and Design* teaches readers the numerical methods they can use to solve related equations using a computer and easy-to-use IMSL numerical subroutines, ensuring a solid foundation in the principles underlying the design of polymer processing techniques. Presenting the background required to design processes for thermoplastics, this thoroughly updated second edition adds a green engineering component and a CD that shows how to use Matlab, Mathematica, and Excel to solve processing problems.

Hardcover w/CD-ROM 408 pp 2014 ISBN 978-0-470-93058-8

€112.00/£86.95/CAD $143.00/USD $130.00



Desalination

NEW

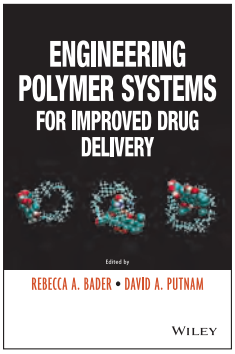
Water from Water

Jane Kucera, Editor

The only guide any engineer working in desalination needs, this is the first volume to cover the subject in such depth and detail. As such, it thoroughly reviews all of the applications, economics, and expectations of what will certainly become one of the most important water-related processes on the planet. Readers take an informed look at equipment, operation, and troubleshooting of desalination systems. This includes thermal processes and membrane processes. More advanced engineering topics for specific industrial applications, such as system design, are also covered.

Hardcover 664 pp 2014 ISBN 978-1-118-20852-6

€169.00/£130.00/CAD $215.00/USD $195.00



Engineering Polymer Systems for Improved Drug Delivery

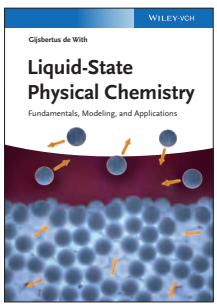
NEW

Rebecca A. Bader, David A. Putnam

Engineering Polymer Systems for Improved Drug Delivery begins with an exploration of the fundamentals and challenges of drug delivery, setting a solid foundation for the text's core topics, which include injectable and implantable polymeric drug delivery systems, oral polymeric drug delivery systems, and advanced polymeric drug delivery. Each chapter covers the basics to engage novice investigators and students as well as more advanced topics to support experienced researchers. Worked examples help readers better understand the ins and outs of designing successful polymeric drug delivery systems.

Hardcover 496 pp 2014 ISBN 978-1-118-09847-9

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



Liquid-State Physical Chemistry

Fundamentals, Modeling, and Applications

Gijsbertus de With

The only comprehensive introductory book on this topic, *Liquid-State Physical Chemistry* presents a clear, well-structured, and educational overview of the most important theories, models, and reactions in liquids. Providing a well-structured and educational overview, this self-contained text includes problems and solutions to facilitate learning. Suitable as an introductory and intermediate text, this is a must-have for chemists, chemical engineers, and material scientists, from newcomers to more experienced researchers.

Hardcover 560 pp 2013 ISBN 978-3-527-33322-6

€99.00/£85.00/CAD $160.00/USD $145.00

Design, Development, and Applications of Structural Ceramics, Composites, and Nanomaterials

NEW

Ceramic Transactions, Volume 244

Dileep Singh, Dongming Zhu, Waltraud M. Kriven, Sanjay Mathur, Hua-Tay Lin, Editors

Once again delivering timely, expert information on the state of the art, this latest installment of *Design, Development, and Applications of Structural Ceramics, Composites, and Nanomaterials* contains carefully selected articles from world-class symposiums on the subject. This particular volume contains papers presented at the 10th Pacific Rim Conference on Ceramic and Glass Technology, held in June 2013. Topics covered include Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Application; Advanced Ceramic Coatings: Processing, Properties, and Application; Geopolymers–Low Energy, Environmentally Friendly, Inorganic Polymeric Ceramics; Multifunctional Metal Oxide Nanostructures and Heteroarchitectures for Energy and Device Application; and Advanced Characterization and Modeling of Ceramic Interfaces.

Hardcover 208 pp 2014 ISBN 978-1-118-77094-8

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

Innovative Processing and Manufacturing of Advanced Ceramics and Composites II

NEW

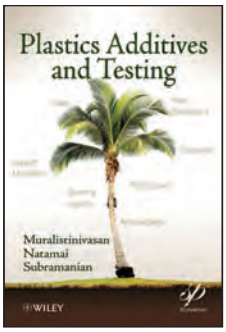
Ceramic Transactions, Volume 243

Tatsuki Ohji, Paolo Colombo, Makio Naito, Javier E. Garay, Hua-Tay Lin, Editors

Another in our celebrated collections of symposium presentations, this volume contains more papers presented at the 10th Pacific Rim Conference on Ceramic and Glass Technology, held in June 2013. Topics covered include Novel, Green, and Strategic Processing and Manufacturing Technologies; Polymer Derived Ceramics and Composites; Advanced Powder Processing and Manufacturing Technologies; and Synthesis and Processing of Materials Using Electric Fields/Currents. All of which again makes this series a useful one-stop resource for understanding the latest in innovative processing and manufacturing of advanced ceramics and composites.

Hardcover 224 pp 2014 ISBN 978-1-118-77150-1

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



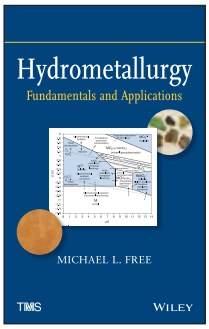
Plastics Additives and Testing

Muralisrinivasan Natamai Subramanian

Because it is critically important to manufacture quality products, a reasonable balance must be drawn between control requirements and parameters for improved processing methods with respect to plastics additives. This book serves to ensure this balance in the manufacturing line. *Plastics Additives and Testing* is a practical book for engineers and operators that discusses both inorganic and organic chemicals that are widely used as additives in plastics processing operations. Written by a successful, international consultant, the book covers plastics additives, testing, and quality control, and is a valuable resource for engineers and operators to have at hand when performing their tasks.

Hardcover 240 pp 2013 ISBN 978-1-118-11890-0

€129.00/£100.00/CAD $164.95/USD $149.95



Hydrometallurgy

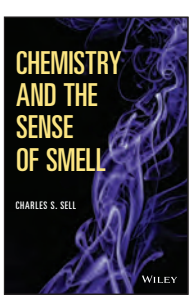
Fundamentals and Applications

Michael L. Free

It's the first book to address all of the fundamentals, applications, reference information, and analytical tools on the topic. As such, *Hydrometallurgy* delivers a condensed collection of information that can be used to improve the efficiency and effectiveness with which metals are extracted, recovered, manufactured, and utilized in aqueous media in technically viable and reliable, environmentally responsible, and economically feasible ways. Suitable for students and researchers alike, this excellent resource addresses the fundamentals of chemical metallurgy in aqueous media, speciation and phase diagrams, rate processes in aqueous metal processing, aqueous metal extraction and leaching, fundamentals of metal concentration processes, and much, much more.

Hardcover 444 pp 2013 ISBN 978-1-118-23077-0

€119.00/£90.50/CAD $149.00/USD $135.00



Chemistry and the Sense of Smell

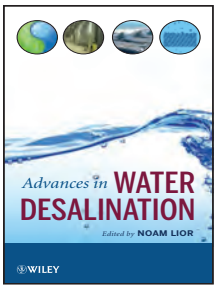
NEW

Charles S. Sell

From Molecule to Mind is an engaging account of the various aspects of the fragrance industry from the chemistry involved to the effects created when smelling an odor. It explores how and why odorous materials are produced in nature, how they are synthesized and used commercially, how they are analyzed and characterized, the chemistry of how we perceive them, and the roles they play in our everyday lives. The final chapter reviews the major intellectual challenges for fragrance chemists and considers the future of the field.

Hardcover 480 pp 2014 ISBN 978-0-470-55130-1

€129.00/£100.00/CAD $164.95/USD $149.95

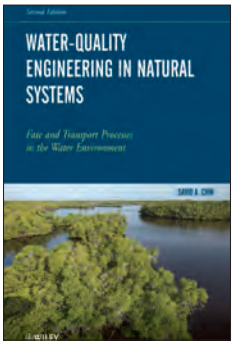


Advances in Water Desalination

Noam Lior, Editor

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

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



Water-Quality Engineering in Natural Systems

Fate and Transport Processes in the Water Environment

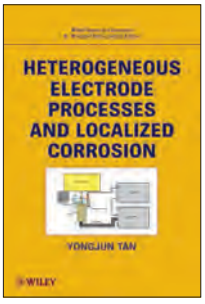
SECOND EDITION

David A. Chin

". . . a very valuable tool for the specialists in the field, for researchers, and students for enlarging their horizon on water-quality engineering in natural systems." —**Environmental Engineering and Management Journal**

This acclaimed text sets forth core concepts and principles that govern the fate and transport of contaminants in water, giving environmental and civil engineers and students a full set of tools to design systems that effectively control and remediate the quality of natural waters. Readers will find coverage of all major classes of water bodies. Moreover, the author discusses the terrestrial fate and transport of contaminants in watersheds, underscoring the link between terrestrial loadings and water pollution.

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

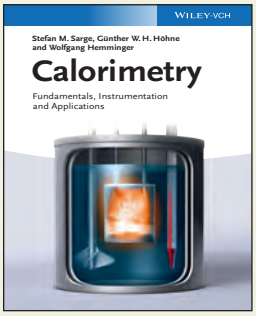


Heterogeneous Electrode Processes and Localized Corrosion

Yongjun Tan

Heterogeneous Electrode Processes and Localized Corrosion begins with a review of homogeneous electrode models and uniform corrosion measurements and then explores probing electrode inhomogeneity, electrochemical heterogeneity, and localized corrosion. Next, the book examines imaging localized corrosion using electrochemically integrated multi-electrode arrays. It shows how to measure thermodynamic and kinetic parameters of localized corrosion processes. It explores versatile heterogeneous electrode processes and explains the sensing of versatile heterogeneous electrode processes. You'll also discover how to design experiments that unveil localized corrosion and its inhibition in inhomogenous media. Case studies and instructive examples abound.

Hardcover 264 pp 2012 ISBN 978-0-470-64795-0 €109.00/£83.50/CAD $138.00/USD $125.00



Calorimetry

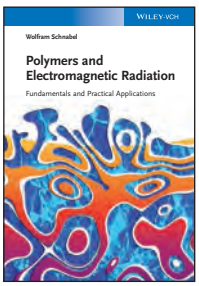
NEW

Fundamentals, Instrumentation and Applications

Stefan Mathias Sarge, Günther W. H. Höhne, Wolfgang Hemminger

Clearly divided into three parts, this practical guide conveniently organizes and optimizes key information regarding colorimetry for its audience. The first part covers all fundamental aspects of the subject. The second part examines the equipment to be used along with new developments. The third and final section provides measurement guidelines so that readers can always arrive at the best results. The result is a thorough guide to this widely used, inexpensive technique—supplemented with practical tips and tricks—that anybody involved in calorimetry should have at hand.

Paperback 304 pp 2014 ISBN 978-3-527-32761-4 €69.00/£60.00/CAD $109.95/USD $99.95



Polymers and Electromagnetic Radiation

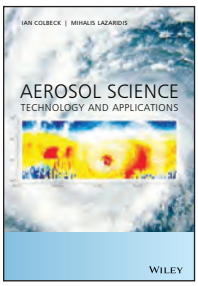
NEW

Fundamentals and Practical Applications

Wolfram Schnabel

The first part of *Polymers and Electromagnetic Radiation* deals with the interaction of polymers with non-ionizing radiation in the frequency-range from sub-terahertz over infrared radiation to visible and ultraviolet light. The second covers the interaction with ionizing radiation from the extreme ultraviolet to X-ray photons. Consequently, the book provides a systematic o verview of how both the non-ionizing and the ionizing radiation can be used for different polymerization approaches, spectroscopy methods, and lithography techniques. Covered applications include curing of coatings and adhesives, xerography, light-emitting diodes, lasers, wave guides, high-capacity data storage, and sensors and catalysts.

Hardcover 360 pp 2014 ISBN 978-3-527-33607-4 €139.00/£115.00/CAD $209.00/USD $190.00



Aerosol Science

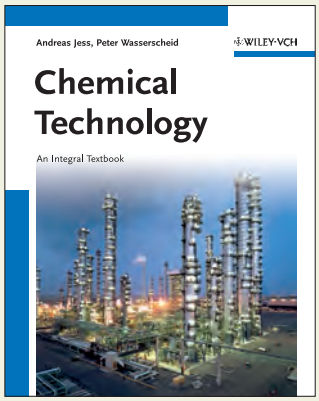
NEW

Technology and Applications

Ian Colbeck, Mihalis Lazaridis, Editors

Advances in particle measurement technologies have made it possible to take advantage of rapid changes in both particle size and concentration. Likewise, aerosols can now be produced in a much more controlled fashion. Reviewing many technological applications together with the current scientific status of aerosol modeling and measurements, this book addresses topics including satellite aerosol remote sensing, the effects of aerosols on climate change, and air pollution and health. Also covered are pharmaceutical aerosols and pulmonary drug delivery, bioaerosols and hospital infections, particle emissions from vehicles, the safety of emerging nanomaterials, and radioactive aerosols.

Hardcover 490 pp 2014 ISBN 978-1-119-97792-6 €142.00/£110.00/CAD $204.00/USD $185.00



Chemical Technology

NEW

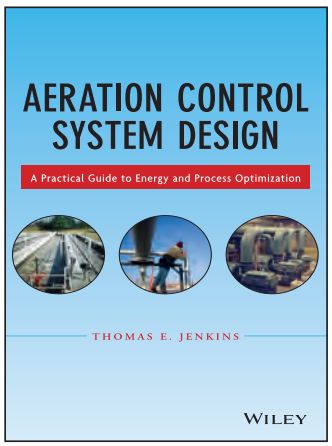
An Integral Textbook

Andreas Jess, Peter Wasserscheid

Good textbooks that combine chemistry and engineering for an integrated course in chemical technology are rare and this innovative work is a notable exception. Here, about 30 industrial processes and their design are analyzed and their inclusion is such that they all differ at least with respect to one important aspect, such as the type and design of the reactor, the chemistry involved, or the separation process used. Instructive figures, rules of thumb, and examples utilizing data from industrial processes facilitate and enhance study.

Hardcover 888 pp 2013 ISBN 978-3-527-30446-2

€79.90/£65.00/CAD $116.00/USD $105.00



Aeration Control System Design

NEW

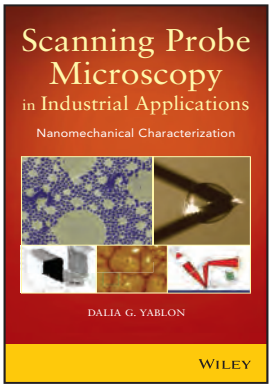
A Practical Guide to Energy and Process Optimization

Thomas E. Jenkins

Joining principles and practices from mechanical, electrical, and environmental engineering, this book shows readers how they can analyze, design, implement, and test automatic wastewater aeration control systems and processes. It brings together all the process requirements, mechanical equipment operations, instrumentation, and controls, and carefully explains how all of these elements are integrated into successful aeration control systems. Moreover, *Aeration Control System Design* features a host of practical, state-of-the-technology tools for determining energy and process improvements, payback calculations, system commissioning, and more.

Hardcover 514 pp 2014 ISBN 978-1-118-38998-0

€95.90/£73.50/CAD $121.00/USD $110.00



Scanning Probe Microscopy for Industrial Applications

NEW

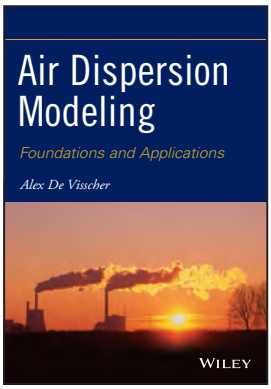
Nanomechanical Characterization

Dalia G. Yablon

Covering a diverse range of practical applications and real-world examples, *Scanning Probe Microscopy for Industrial Applications* examines important and successful applications of SPM in various industries, including food science, the personal care industry, and the forestry industry. Author D. G. Yablon examines how SPM has impacted the industrial sector and how it has resulted in improved product formulation, new understanding of processes, and advances in manufacturing. The book also includes chapters on quality control in the packaging industry and quality assurance of paints and coatings using SPM.

Hardcover 368 pp 2013 ISBN 978-1-118-28823-8

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



Air Dispersion Modeling

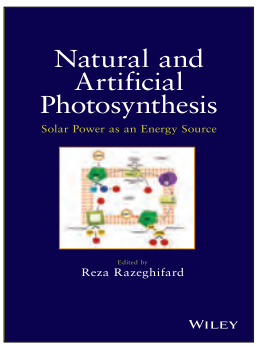
Foundations and Applications

Alex De Visscher

Air dispersion models are used by many industries for the design of effective control strategies to reduce emissions of harmful air pollutants. Outlining the underlying science for formulating air dispersion models, this innovative text introduces the fundamentals, discusses implementation issues of air dispersion models, and provides a detailed description of the most widely used air dispersion models. The book includes detailed model formulations of the main regulatory air dispersion models (e.g., AERMOD, CALPUFF, AUSTAL). In short, it contains all the background information you need to use air dispersion models with confidence.

Hardcover 664 pp 2013 ISBN 978-1-118-07859-4

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



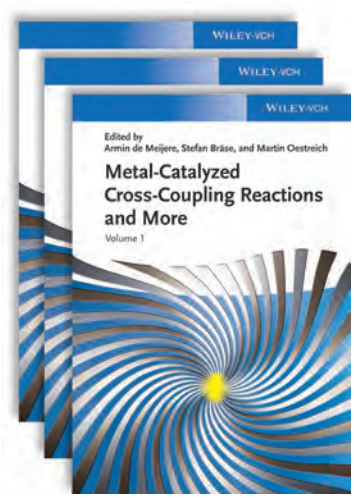
Natural and Artificial Photosynthesis Solar Power as an Energy Source

Reza Razeghifard

Natural and Artificial Photosynthesis aptly covers the current and future applications of solar power as an unlimited source of energy. Author R. Razeghifard explains how captured solar energy can be converted into food biomass and CO2 sequestering biomass or into electricity using photovoltaic devices. He also explores its economical and environmental values. Written for professors, research scientists, and chemical engineers, the book presents energy conversion mechanisms and efficiencies of solar cells for producing electricity.

Hardcover 488 pp 2013 ISBN 978-1-118-16006-0

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



Metal-Catalyzed Cross-Coupling Reactions and More

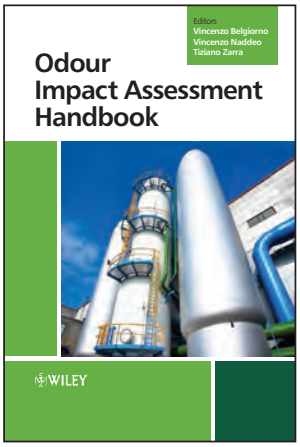
NEW

THREE-VOLUME SET

Armin de Meijere, Stefan Bräse, Martin Oestreich, Editors

The most comprehensive book about metal-catalyzed single bond formation available, this three volume set is a follow up to *Metal-Catalyzed Cross Coupling Reations,* which has been THE reference work in the field of cross-coupling reactions. This updated edit for synthetic chemists working in academia and industry addresses all of the important recent developments in the field, now with broader coverage. More than 50 percent of this work is completely new. New content includes C-H activation.

Hardcover 1576 pp 2014 ISBN 978-3-527-33154-3
€449.00/£325.00/CAD $594.00/USD $540.00

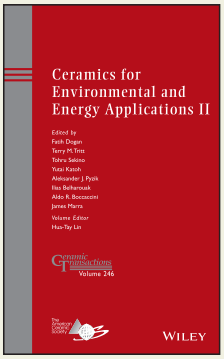


Odour Impact Assessment Handbook

Vincenzo Belgiorno, Vincenzo Naddeo, Tiziano Zarra, Editors

Odours have become a big concern for facility operators, engineers, and urban planners who deal with waste and industrial treatment plants. The subjectivity of smell perception, its variability due to frequency and weather conditions, and the complex nature of the substances involved have long hampered the regulation of odour emissions. This book provides a comprehensive framework for the assessment, measurement, and monitoring of odour emissions, and covers odour characterization and exposure effects, instruments and methods for sampling and measurement, strategies for odour control, and other pertinent topics. Case studies abound.

Hardcover 312 pp 2013 ISBN 978-1-119-96928-0 €142.00/£110.00/CAD $204.00/USD $185.00



Ceramics for Environmental and Energy Applications II

NEW

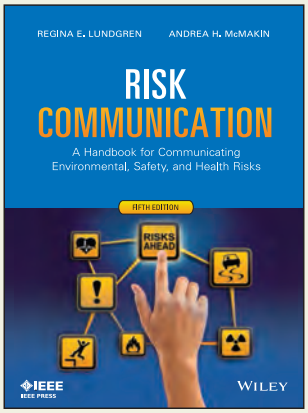
Ceramic Transactions, Volume 246

Fatih Dogan, Terry M. Tritt, Tohru Sekino, Yutai Katoh, Aleksander J. Pyzik, Ilias Belharouak, Aldo R. Boccaccini, Jim Marra, Editors

Hua-Tay Lin, Series Editor

Logically organized and carefully selected, the articles that comprise this work incorporate the latest developments related to ceramics for environmental and energy applications, including glasses and ceramics for nuclear and hazardous waste treatment, solid oxide fuel cells and hydrogen technology, ceramics for electric energy generation, storage and distribution, and direct thermal to electrical energy conversion materials. It also explores such topics as photovoltaic materials and technologies, ceramics for next generation nuclear energy, advances in photocatalytic materials for energy and environmental applications, and ceramics enabling environmental protection.

Hardcover 288 pp 2014 ISBN 978-1-118-77124-2
€109.00/£83.50/CAD $138.00/USD $125.00



Risk Communication

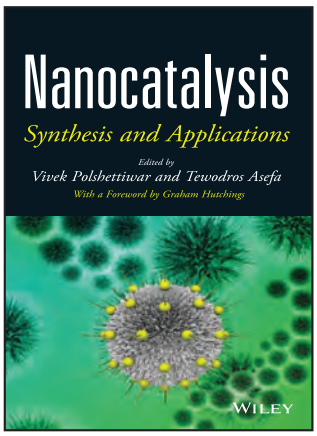
A Handbook for Communicating Environmental, Safety, and Health Risks

FIFTH EDITION

Regina E. Lundgren, Andrea H. McMakin

Written by two well-known risk practitioners with over 25 years' experience in the field, this fully updated fifth edition of *Risk Communication: A Handbook for Communicating Environmental, Safety, and Health Risks* offers sound, scientific research with practical, hands-on advice for those in the public and private sectors.

Paperback 416 pp 2013 ISBN 978-1-118-45693-4
€73.90/£56.95/CAD $92.95/USD $84.95



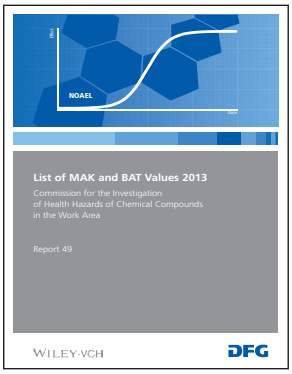
Nanocatalysis

Synthesis and Applications

Vivek Polshettiwar, Tewodros Asefa, Editors

Exhibiting both homogeneous and heterogeneous catalytic properties, nanocatalysts allow for rapid and selective chemical transformations with the benefits of excellent product yield and ease of catalyst separation and recovery. This book reviews the catalytic performance and the synthesis and characterization of nanocatalysts, examining the current state of the art and pointing the way toward new avenues of research. Moreover, the authors discuss new and emerging applications of nanocatalysts and nanocatalysis, from pharmaceuticals to fine chemicals to renewable energy to biotransformations. Readers will also learn about the latest spectroscopic and microscopy tools used in advanced characterization methods that shed new light on nanocatalysts and nanocatalysis.

Hardcover 736 pp 2013 ISBN 978-1-118-14886-0
€169.00/£130.00/CAD $215.00/USD $195.00

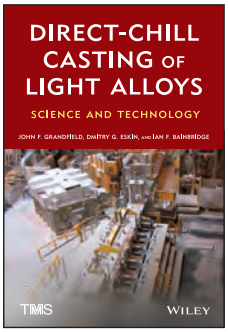


List of MAK and BAT Values 2013

Deutsche Forschungsgemeinschaft (DFG), Editor

MAK values (Maximum Concentrations at the Workplace) and BAT values (Biological Tolerance Values) promote the protection of health in work environs. They are an efficient indicators for the toxic potential of chemical compounds. This book contains a list of scientifically recommended threshold limit values for about 1,000 chemical compounds. Carcinogens, germ cell mutagens, embryotoxicants, sensitizing substances, and those potentially bearing a risk to pregnancy are treated separately. Of particular value are the lists of substances that were reviewed in the past 12 months, including substances being examined for the establishment of MAK and BAT values in coming years.

Paperback 294 pp 2013 ISBN 978-3-527-33616-6 €99.00/£85.00/CAD $149.00/USD $135.00



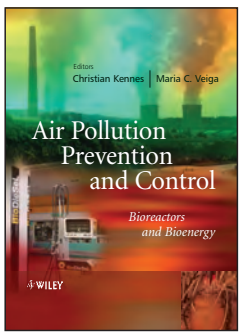
Direct-Chill Casting of Light Alloys

Science and Technology

J. F. Grandfield, D. G. Eskin, Ian Bainbridge

As the title suggests, this work reviews the science and technology of direct-chill casting of light alloys and important ancillary processes. Emphasizing the needs of industrial research and practice, the book explains how the physico-chemical, thermo-physical, and thermo-mechanical aspects of light alloys all play major roles in the formation of the structure, defects, and properties of the casting. *Direct-Chill Casting of Light Alloys* begins with an historical overview and then examines liquid metal supply, alloy preparation, and melt transport. Next, the book covers melt refining and impurity control, grain refinement,solidification phenomena and casting defects, and more. It ends with a discussion of key economic considerations in direct-chill casting.

Hardcover 424 pp 2013 ISBN 978-1-118-02265-8 €122.00/£93.50/CAD $153.95/USD $139.95



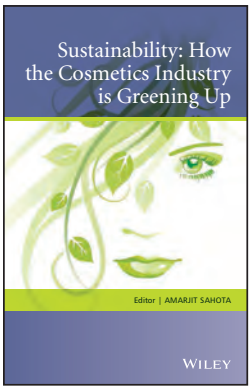
Air Pollution Prevention and Control

Bioreactors and Bioenergy

Christian Kennes, Maria C. Veiga, Editors

In recent years, air pollution has become a major concern worldwide. Air pollutants can affect metabolic activity, impede healthy development, and exhibit carcinogenic and toxic properties in humans. Over the past two decades, the use of microbes to remove pollutants from contaminated air streams has become a widely accepted and efficient alternative to classical physical and chemical treatment technologies. *Air Pollution Prevention and Control: Bioreactors and Bioenergy* focuses on these biotechnological alternatives, looking at both the optimization of bioreactors and the development of cleaner biofuels.

Hardcover 570 pp 2013 ISBN 978-1-119-94331-0 €155.00/£120.00/CAD $215.00/USD $195.00



Sustainability

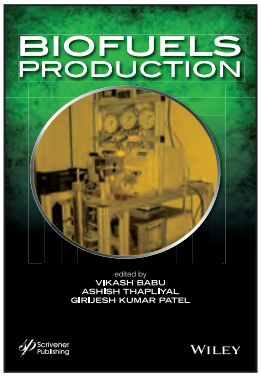
NEW

How the Cosmetics Industry Is Greening Up

Amarjit Sahota, Editor

Sustainability, How the Cosmetics Industry is Greening Up, addresses the growing importance of corporate social responsibility and sustainability in the cosmetics industry. It highlights the need to consider, evaluate, and implement approaches that balance economic, environmental, and consumer demands throughout all aspects of sustainability: ingredients, formulations, packaging, ethics, and certification organisms. Highlighting industry best-practices along the way—and packed with case studies—the book covers such topics as the environmental and social impacts of cosmetic products, energy and waste management, green formulations and ingredients, and green standards.

Hardcover 368 pp 2014 ISBN 978-1-119-94554-3 €119.00/£90.00/CAD $160.00/USD $145.00

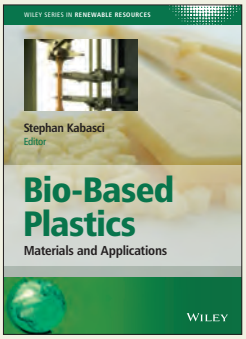


Biofuels Production

Vikash Babu, Ashish Thapliyal, Girijesh Kumar Patel

The search for alternative energy sources to offset diminishing resources of easy and cost-effective fossil fuels has become a global initiative. Fuel generated from biomass is a leading competitor in this arena. Large-scale introduction of biofuels into the energy mix could contribute to environmentally and economically sustainable development on a global scale. This new volume presents the various processes and methodologies employed in this emerging field, offering a cutting-edge and comprehensive approach to the production of biofuels useful for engineers, researchers, and students.

Hardcover 392 pp 2013 ISBN 978-1-118-63450-9 €169.00/£130.00/CAD $215.00/USD $195.00



Bio-Based Plastics

Materials and Applications

Stephan Kabasci, Editor

With a strong focus on materials applications and industrial relevance, this book delivers an up-to-date, broad, yet concise overview of the basic and applied aspects of bio-based plastics. Chapters address specific classes of bio-based plastics such as polysaccharides, polyesters, polyamides, and polyolefines. Each chapter presents information on the principles governing each material's structure, sources, bio-synthesis, production and processing, chemical and/or biotechnological modification, as well as present and future applications of the material. The result is a reference for a diverse audience, including advanced students and industrialists from a variety of backgrounds.

Hardcover 388 pp 2014 ISBN 978-1-119-99400-8 €129.00/£100.00/CAD $198.00/USD $180.00

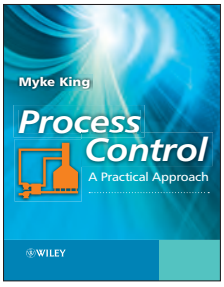
Self-Cleaning Materials and Surfaces

A Nanotechnology Approach

Walid A. Daoud, Editor

With increasing demand for hygienic, self-disinfecting, and contamination-free surfaces, there is much interest in self-cleaning protective materials with applications in medicine, building, environment, optics, aeronautics, and space. Self-cleaning road signals, solar panels, car headlights, food packaging, paint, and tents are just some of the possibilities. This book describes the underlying concepts, potential applications, recent and future development of self-cleaning technologies, and their potential hazards and environmental impacts. It covers self-cleaning cementitious coatings, glasses, roofing tiles, fibers and fabrics; self-cleaning materials for plastic and plastic-containing substrates; nanoscale coatings with self-cleaning properties; and more.

Hardcover 366 pp 2013 ISBN 978-1-119-99177-9 €142.00/£110.00/CAD $204.00/USD $185.00



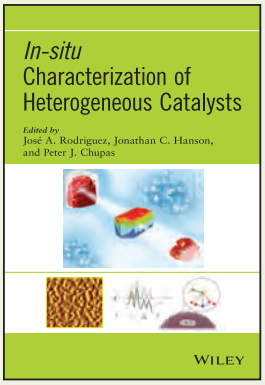
Process Control

A Practical Approach

Myke King

Written by an experienced practitioner, this book offers a back-to-basics approach designed specifically for the process industry. The title presents techniques that have an immediate practical application, and in addition to the design methods, it describes any shortcuts that can be taken and explains how to avoid common pitfalls. Split into two parts, the first covers generic process control techniques, assuming education in mathematics to high school level. The second part is process-specific and requires degree-level knowledge or the equivalent learned through experience working with the technologies.

Hardcover 416 pp 2011 ISBN 978-0-470-97587-9 €112.00/£85.00/CAD $154.00/USD $140.00

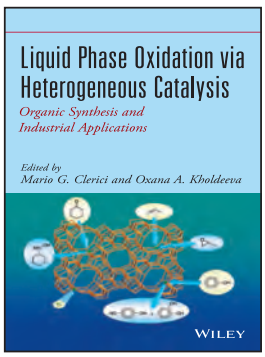


In-situ Characterization of Heterogeneous Catalysts

José A. Rodriguez, Jonathan C. Hanson, Peter J. Chupas, Editors

By explaining each modern technique for the *in-situ* characterization of heterogeneous catalysts step by step, this book helps readers to better understand catalyst behavior and to design new catalysts for green, sustainable fuel and chemical production. You will also learn to improve the selectivity and the performance of catalysts and how to prepare catalysts as efficiently as possible, with minimum waste. Throughout the book, detailed examples show how techniques for studying catalysts and reaction mechanisms can be applied to solve a broad range of problems in heterogeneous catalysis. Detailed figures help readers better understand how and why each technique works. Every chapter contains references that cite the primary literature in the field.

Hardcover 496 pp 2013 ISBN 978-1-118-00016-8
€129.00/£100.00/CAD $165.00/USD $150.00



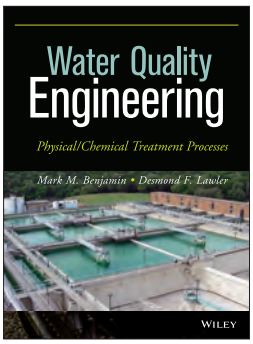
Liquid Phase Oxidation via Heterogeneous Catalysis

Organic Synthesis and Industrial Applications

Mario G. Clerici, Oxana A. Kholdeeva, Editors

From basic principles to new and emerging industrial applications, this book fully examines the synthesis, characterization, and application of catalytic materials for environmentally friendly organic syntheses. Readers will find coverage of all the important classes of catalysts, with an emphasis on their stability and reusability. *Liquid Phase Oxidation via Heterogeneous Catalysis* features contributions from an international team of leading chemists representing both industry and academia. The book begins with a chapter on environmentally benign oxidants and then covers selective oxidations catalyzed by mesoporous metal-silicates, liquid phase oxidation of organic compounds by metal-organic frameworks, heterogeneous photocatalysis for selective oxidations with molecular oxygen, and much, much more.

Hardcover 546 pp 2013 ISBN 978-0-470-91552-3 €129.00/£100.00/CAD $165.00/USD $150.00



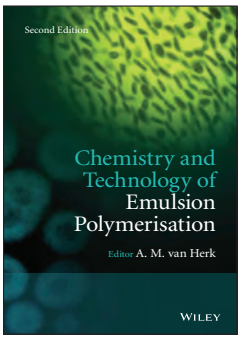
Water Quality Engineering

Physical/Chemical Treatment Processes

Mark M. Benjamin, Desmond F. Lawler

By carefully explaining both the underlying theory and the underlying mathematics, this text helps readers fully grasp the fundamentals of physical and chemical treatment processes for water and wastewater. Throughout the book, the authors use detailed examples to illustrate real-world challenges and their solutions, including step-by-step mathematical calculations. Each chapter ends with a set of problems that lets readers put their knowledge into practice by developing and analyzing complex processes for the removal of soluble and particulate materials in order to ensure the safety of our water supplies.

Hardcover 904 pp 2013 ISBN 978-1-118-16965-0 €149.00/£113.00/CAD $187.00/USD $170.00



Chemistry and Technology of Emulsion Polymerisation

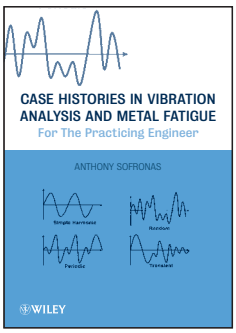
SECOND EDITION

A. M. van Herk, Editor

"This book will make an excellent graduate level textbook, and a valuable reference book . . . "—**Angew.Chem.Int.Ed.**

By carefully explaining the principles of the reaction, *Chemistry and Technology of Emulsion Polymerisation* provides a practical and intuitive explanation of the science. Further, its use in everyday practice can be difficult to develop, the book clearly elucidates how the principles relate to practical application. New to this edition is a chapter on the morphology of latex particles and a discussion regarding the application of controlled radical polymerisation in emulsion polymerization, along with other recent developments.

Hardcover 376 pp 2013 ISBN 978-1-119-95372-2 €97.90/£75.00/CAD $138.00/USD $125.00

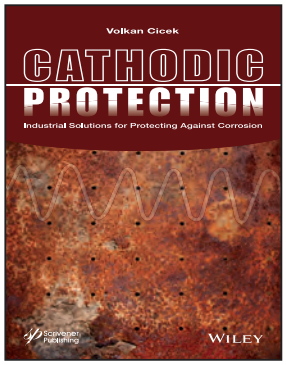


Case Histories in Vibration Analysis and Metal Fatigue for the Practicing Engineer

Anthony Sofronas

Using a plethora of real-world examples, this informative guide helps readers understand and solve industrial problems related to various forms of vibration. Case studies demonstrate how vibration theory can be translated to field application by documenting examples of past vibration problems both common and unique, their root causes, and the methods that were used to solve each problem. Written with accessibility in mind, the book simplifies complex plant problems using familiar terms that are relevant to the practicing engineering, with reliance on excessive theoretical references. A wide range of equipment types is covered as the guide addresses both machinery and pressure vessel equipment failures caused by vibration.

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



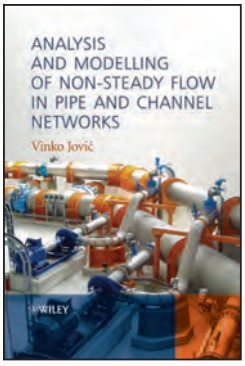
Cathodic Protection

Industrial Solutions for Protecting Against Corrosion

Volkan Cicek

The causes and results of corrosion in industrial settings are some of the most important and difficult problems that engineers and scientists face on a daily basis. Coming up with solutions, or not, is often the difference between success and failure, and can have severe economic and environmental consequences. This timely volume covers the state of the art in corrosion chemistry today, for use in industrial applications or as a textbook. *Cathodic Protection* covers the theoretical aspects of cathodic protection and the science of the process. It provides practical, workable solutions to the everyday problems that engineers working in the field have with corrosion. It is also applicable in many different industries, literally anywhere there might be corrosion.

Hardcover 360 pp 2013 ISBN 978-1-118-29040-8
€152.00/£117.00/CAD $193.00/USD $175.00

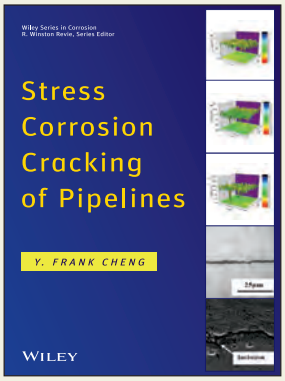


Analysis and Modelling of Non-Steady Flow in Pipe and Channel Networks

Vinko Jovic

Analysis and Modelling of Non-Steady Flow in Pipe and Channel Networks addresses the subject from the standpoints of hydraulics and modelling techniques and methods. These engineering problems occur in the course of the design and construction of hydroenergy plants, water supply, and other systems. In this book, the author presents his experience in solving these problems from the early 1970s to the present day. During this period, new methods of solving hydraulic problems have evolved due to the development of computers and numerical methods. This book is accompanied by a website for solving non-steady pipe flow using the finite element method and also flows in channels.

Hardcover 544 pp 2013 ISBN 978-1-118-53214-0
€129.00/£100.00/CAD $182.00/USD $165.00



Stress Corrosion Cracking of Pipelines

R. Winston Revie, Series Editor
Y. Frank Cheng

By examining all aspects of pipeline stress corrosion cracking—the causes, mechanisms, and management strategies—this book helps engineers construct better pipelines and then maintain and monitor them to ensure safe, reliable energy supplies for the world. The author explains how and why pipelines fall prey to stress corrosion cracking and then offers tested and proven strategies for preventing, detecting, and monitoring it in order to prevent pipeline failure. The book begins with a brief introduction and then explores general principals of stress corrosion cracking, including two detailed case studies of pipeline failure.

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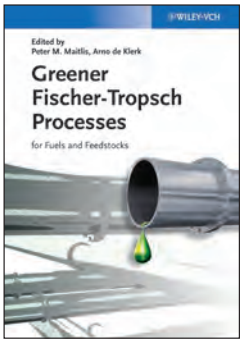

Greener Fischer-Tropsch Processes for Fuels and Feedstocks

Peter M. Maitlis, Arno de Klerk, Editors

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

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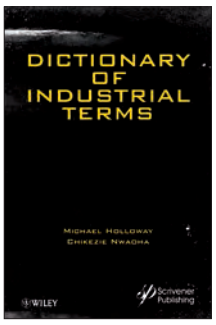

Dictionary of Industrial Terms

Michael D. Holloway, Chikezie Nwaoha

Now it's easier to be certain that everyone's on the same page. Welcome to the most comprehensive dictionary of maintenance and reliability terms ever compiled, dedicated to the process, manufacturing, and every other major area of engineering used in industry. More than 15,000 entries—contributed by experts from industry and academia—are all alphabetically arranged and include special features that encourage usage and understanding. These are supplemented by hundreds of figures and tables that clearly demonstrate the principles and concepts behind process control, instrumentation, reliability, machinery, asset management, lubrication, corrosion, refinery, and much, much more.

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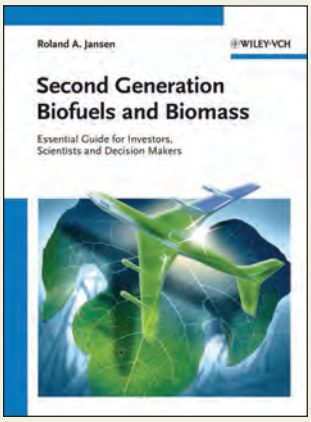

Second Generation Biofuels and Biomass

Essential Guide for Investors, Scientists and Decision Makers

Roland A. Jansen

At last, a book that offers an examination of all facets of the bioenergymarket.Thisindispensable guide to investing in bioenergy commodities concisely details second-generation Biofuels from a scientific, technical, and economic perspective and explores their global environmental, political, and financial impact. *Second Generation Biofuels and Biomass* describes the increasing number of second generation biodiesel projects that are now emerging in anticipation of growing sustainability concerns by governments and in response to market demands for improved process efficiencies and greater feedstock production yields. Undeniably, this is an important sourcebook for scientists, investors, politicians, and decision makers in the energy sector.

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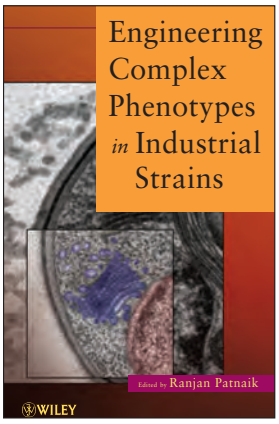

Engineering Complex Phenotypes in Industrial Strains

Ranjan Patnaik

A one-stop platform of reference for research and development biochemists and engineers, *Engineering Complex Phenotypes in Industrial Strains* details the current and future tools used in the production of bulk chemicals and biofuels developed from renewable biomass using green technologies. Not only does it describe, in depth, the technology used to unravel the complexity of microbial metabolism in order to produce engineering strains at time scales much faster than would occur naturally but it also highlights the advantages and drawbacks of all methods and tools used in multiple disciplines for genome engineering of complex phenotypes. Included are useful case-study examples to help reinforce the fundamental concepts.

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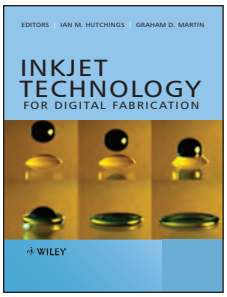
€87.90/£66.95/CAD $109.95/USD $99.95



Inkjet Technology for Digital Fabrication

Ian M. Hutchings, Graham D. Martin, Editors

Beginning with an overview of the fundamentals, this book covers the key components—for example piezoelectric print-heads and fluids for inkjet printing—and the processes involved. It goes on to describe specific applications (e.g., MEMS, printed circuits, active and passive electronics, biopolymers and living cells, and additive manufacturing). Detailed case studies are included on flat-panel OLED displays, RFID (radio-frequency identification) manufacturing, and tissue engineering. A comprehensive examination of the current technologies and future directions of inkjet technology completes the coverage.

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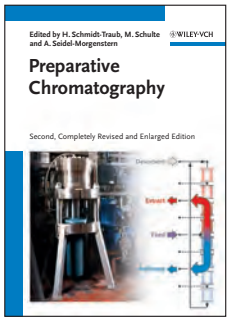

Preparative Chromatography

Second, Completely Revised and Enlarged Edition

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

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

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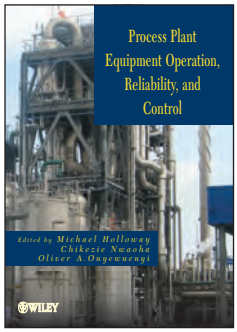

Process Plant Equipment Operation, Reliability and Control

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

". . . give[s] readers access to both fundamental information on process plant equipment and to practical ideas, best practices, and experiences of highly successful engineers from around the world."
—Stainless Steel World

"The book is illustrated throughout with numerous black and white photos and diagrams and also contains case studies demonstrating how actual process plants have implemented the tools and techniques discussed in the book. An extensive list of references enables readers to explore each individual topic in greater depth."
—Valve World

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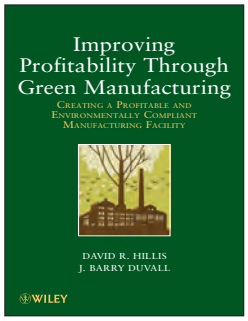

Improving Profitability Through Green Manufacturing

Creating a Profitable and Environmentally Compliant Manufacturing Facility

David R. Hillis, J. Barry DuVall

"I highly recommend [this] holistic and knowledge building book . . . to any business leaders, manufacturers, design specialists, building and plant builders, public policy makers, environmental groups, practicing engineers, engineering and manufacturing students, elected officials, and anyone interested in green manufacturing who are seeking a clear and concise road map to establishing and maintaining a complete system that is profitable and environmentally sustainable. This book will change your mind forever about profit and the environment as green manufacturing works for both goals."
—Blog Business World

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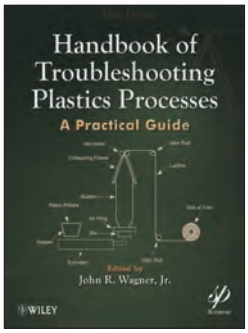

Handbook of Troubleshooting Plastics Processes

A Practical Guide

John R. Wagner, Jr., Editor

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

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

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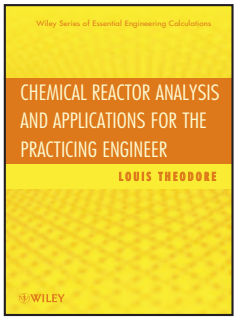
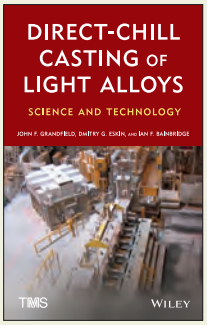


Chemical Reactor Analysis and Applications for the Practicing Engineer

Louis Theodore

Address both the technical and calculational problems in the field of chemical reactor analysis. Get an introduction to the history, process variables, basic operations, kinetic principles, and conversion variables, then explore traditional reactor analysis. Topics include batch, CSTRs, and tubular flow reactors, plus a comparison of these classes of reactors. Finally, you'll key in on reactor applications that include non-ideal reactors (thermal effects, interpretation of kinetic data, and reactor design) and conclude with other reactor topics, including catalysis, catalytic reactors, other reactions and reactors, and ABET-related topics. An extensive appendix is also included.

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



Direct-Chill Casting of Light Alloys Science and Technology

J. F. Grandfield, D. G. Eskin, Ian Bainbridge

As the title suggests, this work reviews the science and technology of direct-chill casting of light alloys and important ancillary processes. Emphasizing the needs of industrial research and practice, the book explains how the physico-chemical, thermo-physical, and thermo-mechanical aspects of light alloys all play major roles in the formation of the structure, defects, and properties of the casting. The book also covers melt refining and impurity control, grain refinement, solidification phenomena and casting defects, and more. It ends with a discussion of key economic considerations in direct-chill casting.

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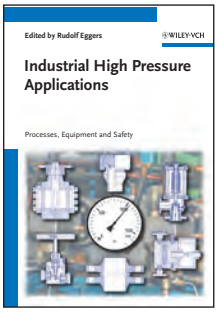
€122.00/£93.50/CAD $153.95/USD $139.95



Industrial High Pressure Applications

Processes, Equipment and Safety

Rudolf Eggers, Editor

"With its excellent choice of industrial contributions, this handbook offers high-quality information not found elsewhere, making it invaluable reading for a broad and interdisciplinary audience."
—ETDE Energy Database

Following an introduction on historical development, the current state, and future trends, this book goes on to describe different industrial processes, including methanol and other catalytic syntheses, and polymerization and renewable energy processes, before covering safety and equipment issues.

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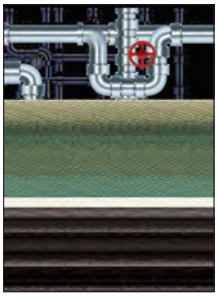

Pipe Flow

A Practical and Comprehensive Guide

Donald C. Rennels, Hobart M. Hudson

Achieve more energy efficient system designs by investigating virtually all pipe flow configurations while accessing up-to-date loss coefficients for various pipe joints. Experimental test data and formulas for loss coefficients from worldwide sources are evaluated, integrated, and developed into widely applicable equations arranged in straightforward tables and diagrams. The processes used to select and develop loss coefficient data for the various configurations are also presented. C overage includes conservation equations, incompressible flow, compressible flow, flow-induced vibration, transient analysis, and uncertainty analysis.

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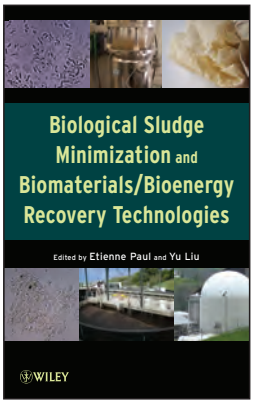
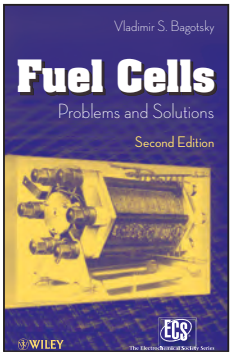


Biological Sludge Minimization and Biomaterials/Bioenergy Recovery Technologies

Etienne Paul, Yu Liu, Editors

Take a look at cutting-edge techniques for reducing sludge production, converting sludge into a value-added material, recovering useful resources from sludge, and sludge incineration. Reflecting the impact of new stringent environmental legislation, you get a frank appraisal of how sludge can be realistically managed, with coverage of key concerns and the latest tools, including the fundamentals of biological processes for wastewater treatment, wastewater microbiology, and microbial metabolism; technologies for sludge reduction; and the sustainable treatment of organic wastes and electrical energy recovery.

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



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Problems and Solutions

SECOND EDITION

Vladimir S. Bagotsky

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—Nanomaterials and Energy

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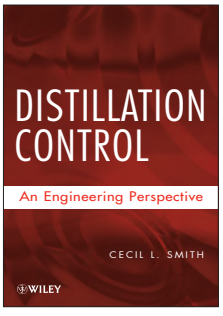

Distillation Control

An Engineering Perspective

Cecil L. Smith

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

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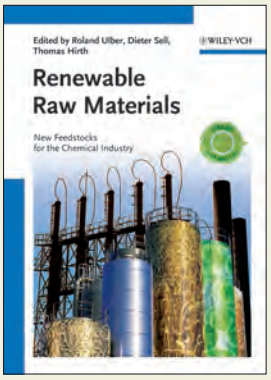

Renewable Raw Materials

New Feedstocks for the Chemical Industry

Roland Ulber, Dieter Sell, Thomas Hirth, Editors

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

"The editors and their team of contributing experts in this special field created an excellent up-to-date reference guide covering all aspects from a wide range of perspectives, emphasizing not only the technical issues but also considering the market place and socio-economic aspects."
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