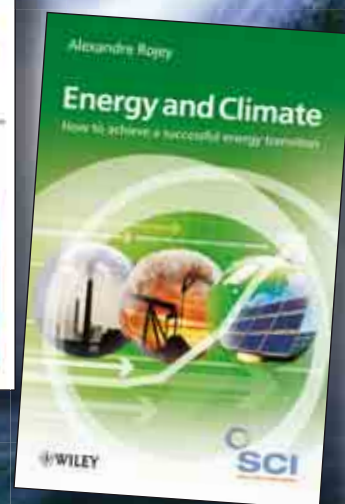
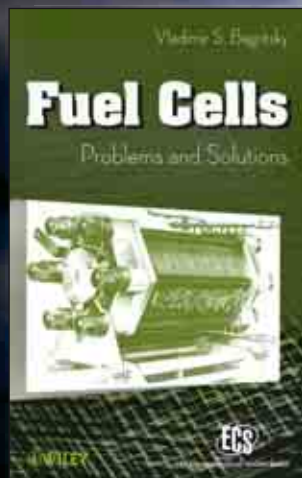
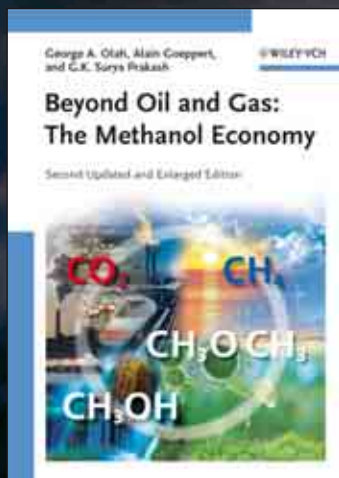


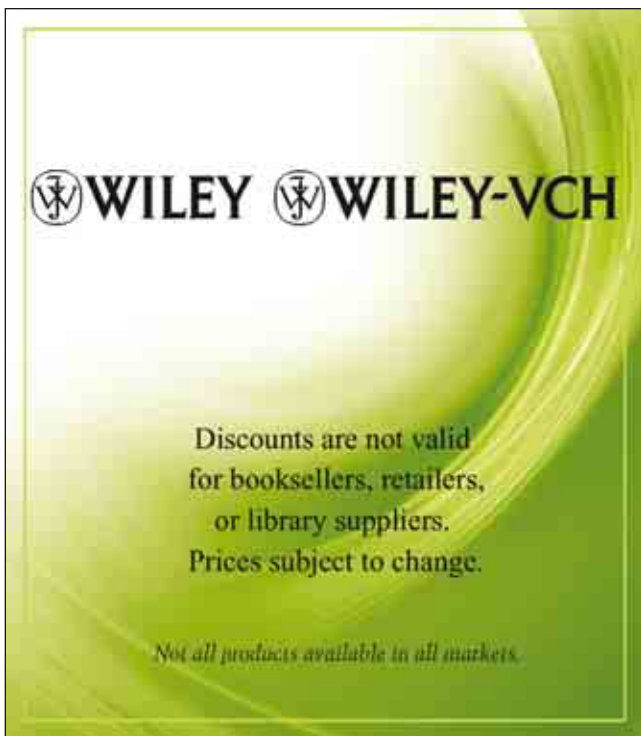
Green Chemistry

Resources for a Cleaner, Safer,
and More Prosperous Future



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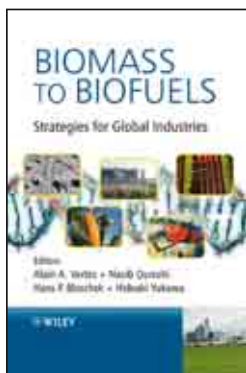
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Biomass to Biofuels

Strategies for Global Industries

Alain Vertes, *Research Inst. of Innovative Technology*; Nasib Qureshi, *US Department of Agriculture*; Hideaki Yukawa, *Research Inst. of Innovative Technology*; Hans Blaschek, *Univ. of Illinois, USA*; Editors

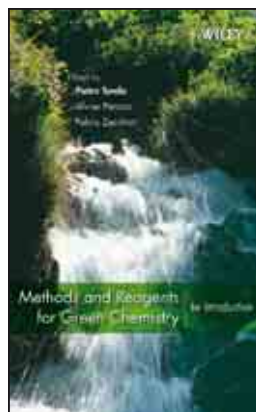
Focusing on challenges to the billion-ton renewable fuels vision, this book discusses the technological and business developments that will be needed to industrialize biofuels on a global scale. Technological

issues addressed include fermentation and downstream processing technologies, as compared to current industrial practice and process economics. Business issues covered span the entire biofuel value chain, from financing to manufacturing to raw material farming to collection, and transport to point of sale. The emphasis throughout is on creating a global view that takes into account various biofuels markets, from Brazil, the EU, the US, or Japan, to emerging economies.

Hardcover 560 pp 2010 ISBN 978-0-470-51312-5 €64.90/£50.00/CAD \$108.00/USD \$90.00

Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-75002-5

new



Methods and Reagents for Green Chemistry

best
seller

An Introduction

Pietro Tundo, Alvis Perosa, Fulvio Zecchini, Editors

"...a good starting resource for readers seeking to employ sustainable chemistry."
—**Journal of the American Chemical Society**

Based on the third edition of the Collection of Lectures of the Summer Schools on Green Chemistry held in Venice, Italy, in the summers of 1998–2003, this reference addresses all of the important aspects of green chemistry

by the leading experts in the field, all in one volume. The focus is on three areas of green chemistry: green reagents, alternative reaction conditions, and green catalysis and biocatalysis, with discussions of real applications of current knowledge and advanced techniques. The work also compares green approaches and methodologies with traditional practices and includes reviews of clean industrial processes.

Hardcover 336 pp 2007 ISBN 978-0-471-75400-8 €97.90/£76.95/CAD \$137.99/USD \$115.00

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Kirk-Othmer Chemical Technology and the Environment

TWO-VOLUME SET

Wiley

"...a good addition to libraries that serve the needs of those who are interested in environmental stewardship, sustainability, and sustainable development." —**Journal of Environmental Quality**

Essentially a specialized edition of the world-renowned *Kirk-Othmer Encyclopedia of Chemical Technology*, this two-volume reference delivers information that is specific to chemical technology as it relates to the environment. More than 70 self-contained articles address contemporary issues in environmental pollution, prevention and control, and regulatory, health, and safety issues. It introduces and expands the knowledge on emerging green materials and processes, including sustainable development and chemistry and green chemistry. Written by prominent scholars from industry, academia, and research institutions from around the globe, this compact reference features the same breadth, quality of coverage, and clarity of presentation found in the original. It's a reference you're sure to turn to time and time again.

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Transforming Sustainability Strategy into Action

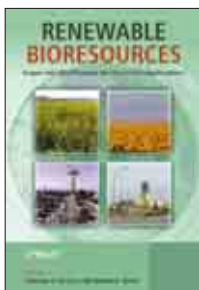
The Chemical Industry

Beth Beloff, Marianne Lines, Dickson Tanzil, Editors

How do you reconcile economically competitive strategies with environmentally sound and socially responsible practices? With *Transforming Sustainability Strategy into Action*, you get proven practical techniques to help identify and assess options for improving

the sustainability of your organization. With a pragmatic emphasis on operational aspects, decision support, and guidelines for measuring progress, you'll be able to employ this globally proven problem-solving and decision-making tool to address some of the most challenging of today's industrial issues. The hands-on, responsive business solutions found here will give you the competitive edge you need to prepare for tomorrow's socially and environmentally conscious marketplace.

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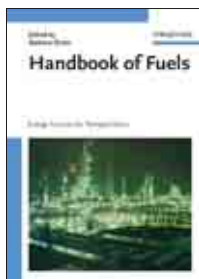
Renewable Bioresources

Scope and Modification for Non-Food Applications

Christian Stevens, Roland Verhé, both of Ghent Univ., Belgium; Editors

Renewable Bioresources is the first text to consider the broad concept of renewable materials from the socio-economic aspects through to the chemical production and technical aspects of treating different raw products. The text sets the context of the renewables debate with key opening chapters on green chemistry and the current situation of US and EU policy regarding sustainability and industrial waste. The technical production of renewable resources is then discussed with material that examines integral valorisation, the primary production of raw materials, downstream processing, and the identification of renewable crop materials.

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Handbook of Fuels

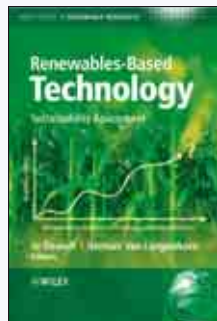
Energy Sources for Transportation

Barbara Elvers, Editor

This comprehensive overview of most types of fuels used to power vehicles—and the processes used in their production—focuses mainly on automotive fuels, although aviation and marine fuels are described as well as such alternative and novel fuels as ethanol, methanol, and

natural gas. The text is based on thoroughly updated articles from the *Ullmann's Encyclopedia of Industrial Chemistry*. The author, Barbara Elvers, studied chemistry at the Univ. of Hamburg from 1970 to 1979, where she received her Ph.D. in carbohydrate chemistry. She moved to the U.S. in 1980, where she was employed as a visiting scientist at SRI, Palo Alto, in the life science department.

Hardcover 371 pp 2008 ISBN 978-3-527-30740-1 €139.00/£120.00/CAD \$227.99/USD \$190.00



Renewables-Based Technology

Sustainability Assessment

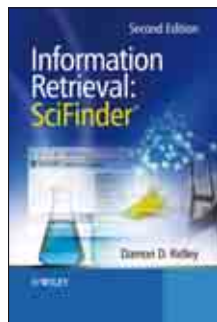
Jo Dewulf, Herman Van Langenhove, both of Ghent Univ., Belgium; Editors

Renewables-Based Technology brings together and evaluates the main sustainability assessment methods and techniques in one volume. Structured into three main sections, the text was penned by a global team of authors from academia, government, research centers, and international companies. Part

one introduces the quantitative assessment of renewables, their potential as feedstock for industry, and an overview of sustainability performance indicators. Part two introduces the key sustainability methods and techniques that are currently used. Part three contextualizes these methods by providing case studies that are set within the major industries benefiting from renewables.

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Surfactants from Renewable Resources

new

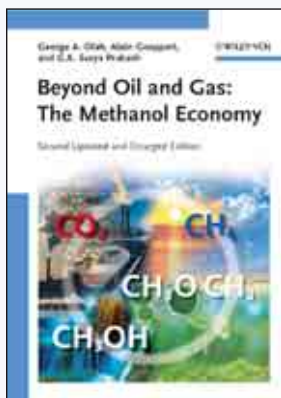
Mikael Kjellin, YKI, Ytkemiska Inst. AB; Ingegärd Johansson, Akzo Nobel Surfactants Europe; Editors

Most surfactants today are readily biodegradable and low-toxic to the aquatic environment—the two criteria for green surfactants. However, there is still interest in finding more renewable sources for surfactants and

there are ways of making the building blocks for these surfactants from natural sources. This text focuses on bio-based products that have the potential to improve sustainability of natural resources and environmental quality, while competing on an economic level and brings together, in one source, information on new biodegradable surfactants with safer properties for modern industrial formulations.

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Beyond Oil and Gas

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The Methanol Economy

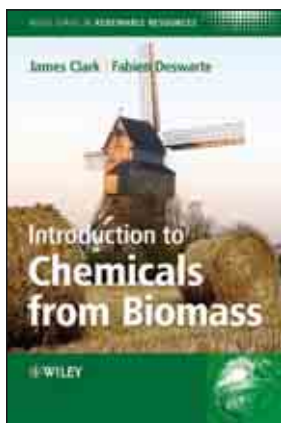
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George A. Olah, Alain Goepfert, G. K. Surya Prakash, *all of Univ. of Southern California, USA*

Written by Nobel Prize winner George A. Olah and colleagues, this second edition of the bestselling title provides the latest information about methanol as a novel trendsetting energy source. The first edition of this book was a tremendous success and

this new edition is completely updated and contains 25 percent new content. Topics are clearly presented and easy accessible. The information given is absolutely up-to-date. Overall, the book deals with the important topic of how to produce energy in the future and describes a promising alternative to dangerous and limited energy resources.

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Introduction to Chemicals from Biomass

best seller

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

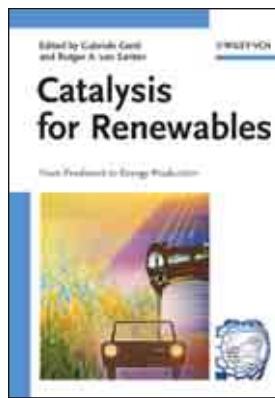
Presenting an overview of the use of bioresources in the 21st century, this book covers resources, chemical composition of biomass, key factors affecting composition, utilization of wastes, extraction technologies, controlled pyrolysis, fermentation, platform molecules, and green chemical technologies for their conversion to valuable

chemicals. The text shows how smaller volume chemicals could become bulk chemicals as a result of a greater exploitation of biomass products, making it an important resource for academic and industrial scientists and researchers. Topics covered include the chemical value of biomass, green chemical technologies, production of energy from biomass, and more.

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Catalysis for Renewables

From Feedstock to Energy Production

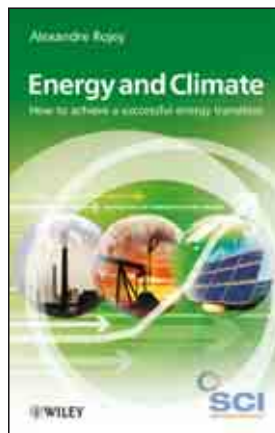
Gabriele Centi, *Univ. Messina, Italy*; Rutger A. van Santen, *Eindhoven Univ. of Technology, The Netherlands*; Editors

The authority behind this practical work is the IDECAT Network of Excellence and the authors explain how the use of catalysis will promote the more extensive use of renewable feedstocks in chemical and energy production. You get full coverage of the latest applications and their impli-

cations for the future. A partial sampling of topics includes biomass conversion, fine chemicals from renewables, thermochemical conversion of biomass into fuels, bioethanol, and solar energy as a source of hydrogen and for CO₂ conversion.

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Energy and Climate

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How to Achieve a Successful Energy Transition

Alexandre Rojey, *IFP*

As supplies diminish and demand increases, transitioning from fossil fuels to other more sustainable, cleaner fuel sources is, perhaps, the most important challenge facing developed nations today. This seminal work covers all the technology options currently available to effect this shift and summarizes key information from the International Energy Agency and other leading organizations to provide

a detailed road map for this transition. Topics include more energy efficient technologies, new developments in fossil fuels, renewable energy sources, hydrogen as an energy vector, and more.

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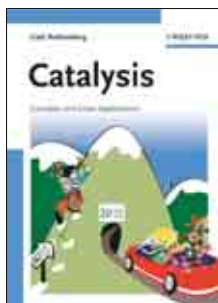
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Catalysis

Concepts and Green Applications

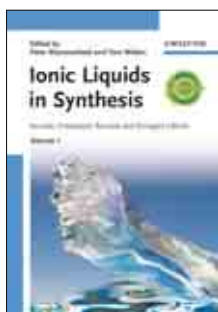
Gadi Rothenberg, Univ. of Amsterdam, The Netherlands

"One of those timely books that does not leave you empty-handed . . . The more I read the book the more interested and surprised I was."—Chemistry World

This first textbook to cover all aspects of catalysis also bridges computational methods, industrial applications, and green chemistry, and includes more than 700 references. Following an introduction to green chemistry and the basics of catalysis, the text deals with bio-, homogeneous, and heterogeneous catalysis, as well as computer applications in catalysis research.

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Peter Wasserscheid, Univ. of Erlangen-Nuremberg, Germany; Thomas Welton, Imperial College London, UK; Editors

"Provides an excellent summary of available information on ionic liquids as well as ready access to the primary literature on specific topics."—Journal of the American Chemical Society

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Hydrogen-Transfer Reactions

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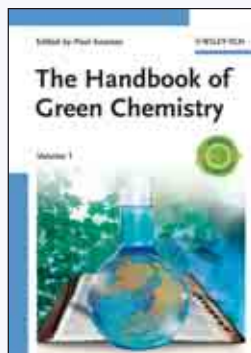
James T. Hynes, Univ. of Colorado, USA; Judith P. Klinman, Univ. of California, USA; Hans-Heinrich Limbach, Free Univ. Berlin, Germany; Richard L. Schowen, Univ. of Kansas, USA; Editors

"... a comprehensive . . . up-to-date reference . . . written by a host of highly respected experts in the field."—Journal of the American Chemical Society

This multivolume work is the only comprehensive, up-to-date reference work on the theory, occurrence, and application of hydrogen transfer processes. Adopting an integrated approach, this handy reference includes essential information on the theoretical basis, the fundamental types, and the latest techniques used to reveal, monitor, as well as measure hydrogen transfer reactions. Numerous tables and illustrations facilitate fast and easy access to the desired information, making this an indispensable source of knowledge.

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The Handbook of Green Chemistry

12-VOLUME SET

Paul T. Anastas, Yale Univ., USA; Series Editor

Edited by the originator of the famous 12 principles of green chemistry, this is an authoritative, one-stop reference that provides readers with everything they need to know about the field, including product and molecule design and

applications of green chemistry in real-world environmental situations. This set summarizes the significant body of work that has accumulated over the past decade, detailing the breakthroughs, innovation, and creativity within green chemistry and engineering. These 12 volumes provide a wealth of information resulting in an essential collection for anyone wishing to gain understanding and expertise regarding the world of green chemistry.

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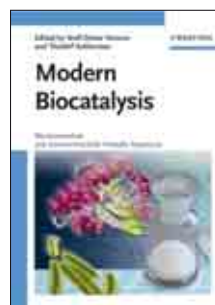
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Modern Biocatalysis

Stereoselective and Environmentally Friendly Reactions

Wolf-Dieter Fessner, Technical Univ. Darmstadt, Germany; Thorleif Anthonen, Norwegian Univ. of Science and Technology, Norway; Editors

Biocatalysis is a rapidly growing area of industrial importance world-wide.

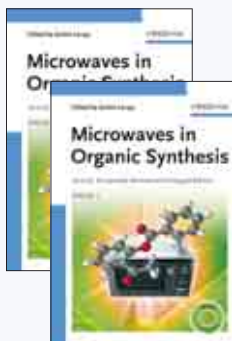
Covering the wide and rapidly growing

field of biocatalysis, *Modern Biocatalysis* combines complementary expertise from such areas as microbiology, enzymology, molecular biology, structural biology, and organic chemistry, thus highlighting the interdisciplinary nature of the subject.

With its special focus on progress and new developments toward environmentally beneficial reactions with high levels of selectivity for the production of key compound classes, this book will enlighten both chemists and biologists as to the advances and opportunities existing in enzyme catalysis.

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Microwaves in Organic Synthesis

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André Loupy, *Université Paris-Sud, France*; Editor

The use of microwaves to control and speed up chemical reactions is becoming a routine method in synthetic organic chemistry. Completely updated and expanded, this comprehensive two-volume reference

contains everything you need to know about microwaves in synthetic chemistry. Topics range from the best equipment to non-thermal effects, from solid-support reactions to catalysis. The addition of new chapters means that this new edition has 30 percent more content on such topics as ionic liquids, solid phase peptide synthesis, and more.

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Green Separation Processes

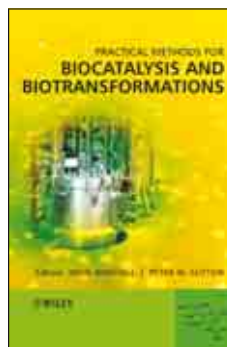
Fundamentals and Applications

Carlos A. M. Afonso, *CQFM-Inst. Superior Tecnico, Portugal*; João Pedro G. Crespo, *FCT-New Univ. of Lisbon, Portugal*; Editors

This timely book is the first to provide a comprehensive overview of all important aspects of separation technology with a focus on the green aspect. The expert authors present everything from reactions without solvents to nanostructures

for separation methods, from combinatorial chemistry on solid phase to dendrimers. Areas of discussion, among others, include green chemistry for sustainable development, new synthetic methodologies and the demand for adequate separation processes, and future trends and needs. The result is a ready reference packed full of valuable facts on the latest developments in the field.

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Practical Methods for Biocatalysis and Biotransformations

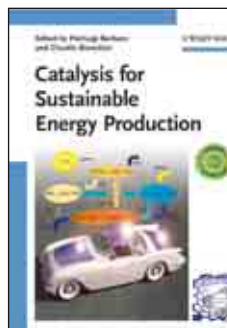
new

John Whittall, *Univ. of Manchester, UK*; Peter Sutton, *GlaxoSmithKline R&D Ltd.*

Biocatalysts are increasingly used by chemists engaged in fine chemical synthesis within both industry and academia. Today, there exists a huge choice of high-tech enzymes and whole cell biocatalysts, which add enormously to the repertoire of synthetic possibilities. *Practical Methods for*

Biocatalysis and Biotransformations is a how-to guide that focuses on commercially available enzymes and strains of microorganisms that are readily obtained from culture collections. The source of starting materials and reagents, hints, tips, and safety advice are given to ensure that the procedures are reproducible.

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Catalysis for Sustainable Energy Production

new

Pierluigi Barbaro, *Inst. di Chimica dei Composti Organici Metallici, Italy*; Editors

This first book on this timely topic is a reliable road map for defining the role of catalysis in energy production. As such, it serves as a ready reference for researchers and engineers and covers all the hot

topics from a broad perspective: fuel cells, hydrogen production and storage, methane storage and industrial catalysis. With its analysis of new directions and opportunities in the area and its integration of industrial, governmental, and academic points of view, this work is a real must-have for everyone interested in greener energy production. A sampling of topics includes the direct ethanol fuel cell, hydrogen storage, H₂ and hydrogen vectors production, and industrial catalysis for sustainable energy.

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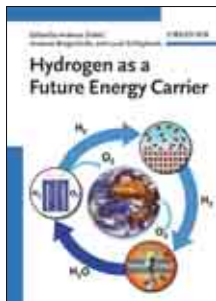
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Hydrogen as a Future Energy Carrier

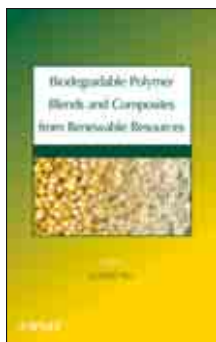
Andreas Züttel, *Univ. of Fribourg, Switzerland*;
Andreas Borgschulte, *EMPA, Switzerland*;
Louis Schlapbach, *EMPA, Switzerland*; Editors

The world's output of irretrievable greenhouse gases as well as hazardous waste resulting from current methods of energy generation must be significantly reduced to avoid environmental, meteorological, and economic disasters. One

widely acknowledged strategy is the use of hydrogen as a carbon-free source of energy instead of burning fossil fuels. This book provides broad coverage of the most important fields of modern hydrogen technology: hydrogen properties, production, storage, conversion to power, and applications in materials science. The authors address the gamut from fundamental research to viable devices and systems, including practical approaches to design and engineering, functioning prototypes, and advanced systems.

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Biodegradable Polymer Blends and Composites from Renewable Resources

new

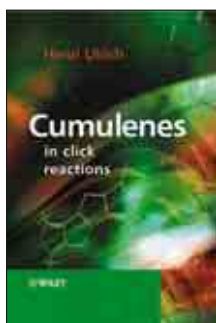
Long Yu, *Commonwealth Scientific and Industrial Research Organization, Australia*

Provides a comprehensive, current overview of biopolymeric blends and composites and their applications in various industries. Organized according to the type of blend or composite it explores the relationship between the structure of the blends/composites and their respective properties, with particular focus on interface,

compatibility, mechanical, and thermal properties. Includes real-life applications and examines potential markets.

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Cumulenes in Click Reactions

new

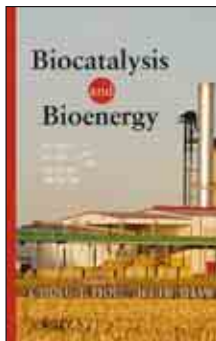
Henri Ulrich, *Chemical Consultant, USA*

Cumulenes in Click Reactions contains an all-inclusive list of cumulene systems and their reactions, with an emphasis on their click-like nature. The chapters are structured according to the number of carbon atoms in the system and include coverage of one-carbon cumulenes, such as sulfines, sulfenes, thiocarbonyl, and 1-aza-2-azoniaallene salts. Coverage also addresses

two-carbon cumulenes, including carbon oxides, carbon sulfides, and carbon nitrides; 1,2-dicarbon cumulenes, such as ketenes, thioketenes, and ketenimines; 1,3-dicarbon cumulenes, including thiocarbonyl S-ylides, 2-azaallenium salts, and 1-oxa-3-azoniabutatriene salts; and 1,2,3-tricarbon cumulenes, such as allenes, butatrienes, and higher cumulenes.

Hardcover 568 pp 2009 ISBN 978-0-470-77932-3 €155.00/£120.00/CAD \$246.00/USD \$205.00

Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-74795-7



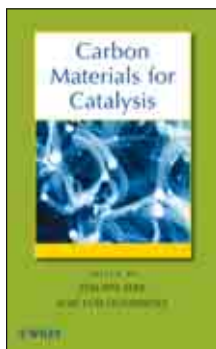
Biocatalysis and Bioenergy

C. T. Hou, Jei-Fu Shaw

Featuring contributions from internationally recognized experts, *Biocatalysis and Bioenergy* presents state-of-the-art advances and in-depth reviews of biocatalysis and bioenergy, with an emphasis on biodiesel, bioethanol, biohydrogen, and industrial products. The first comprehensive book on biocatalysis for bioenergy and biofuel applications, it explores every stage of biocatalysis, including enzyme catalysis, biotransformation, bioconversion, fermentation, and biotechnology. With today's quest for new means of producing energy, this is a timely reference for graduate level students, post-docs, and researchers working in the chemical, biosciences, biotechnology, renewable energy, and chemical engineering sectors.

Hardcover 608 pp 2008 ISBN 978-0-470-13404-7 €129.00/£100.00/CAD \$180.00/USD \$150.00

Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-38586-9



Carbon Materials for Catalysis

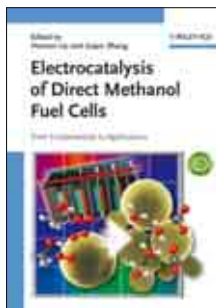
new

Philippe Serp, José Luis Figueiredo, Editors

This is the first comprehensive book covering all aspects of the use of carbonaceous materials in heterogeneous catalysis. It covers the preparation and characterization of carbon supports and carbon-supported catalysts; carbon surface chemistry in catalysis; the description of catalytic, photo-catalytic, or electro-catalytic reactions, including the development of new carbon materials such as carbon xerogels, aerogels, or carbon nanotubes; and new carbon-based materials in catalytic or adsorption processes.

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

Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-40370-9



Electrocatalysis of Direct Methanol Fuel Cells

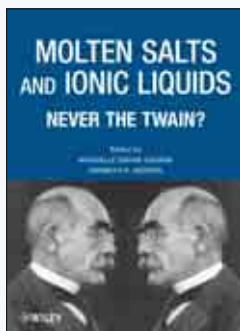
new

From Fundamentals to Applications

Jiujun Zhang, Hansan Liu, both of *National Research Council Canada, Canada*; Editors

This first book to focus on a comprehensive description on DMFC electrocatalysis draws a clear picture of the current status of DMFC technology, especially the advances, challenges, and perspectives in the field. Leading researchers from universities, government laboratories, and fuel cell industries in North America, Europe, and Asia share their knowledge and information on recent advances in the fundamental theories, experimental methodologies, and research achievements. A wealth of helpful figures, tables, photos, and a comprehensive list of reference papers are included to facilitate greater understanding.

Hardcover 520 pp 2009 ISBN 978-3-527-32377-7 €139.00/£120.00/CAD \$234.00/USD \$195.00



Molten Salts and Ionic Liquids

Never the Twain?

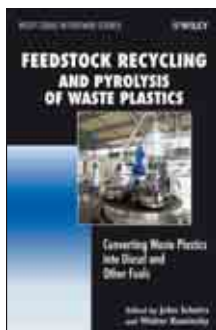
Marcelle Gaune-Escard,
Kenneth R. Seddon, Editors

Gain an in-depth understanding of the physio-chemical properties of molten salts and ionic liquids. This important new work contains 26 chapters contributed by a panel of experts in their respective fields who cover the structure, dynamics,

chemistry, and interactive and thermodynamic properties of molten salts and ionic liquids. Readers will gain a solid understanding of the similarities and differences between the two categories of materials in terms of properties, experimental and theoretical methods for investigating these properties, techniques for data collection and analysis, and various applications. A valuable resource for any academic or industrial chemist using, or contemplating using, molten salts or ionic liquids.

Hardcover 272 pp 2009 ISBN 978-0-471-77392-4 €82.90/£63.50/CAD \$119.95/USD \$39.95

new



Feedstock Recycling and Pyrolysis of Waste Plastics

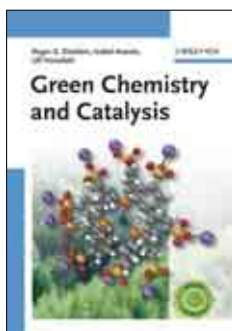
Converting Waste Plastics into Diesel and Other Fuels

John Scheirs, *ExcelPlas Australia*; Walter Kaminsky, Editors

"...contains a wealth of information... anyone interested in the field must consult this text."
—*Journal of Hazardous Materials*

Hardcover 816 pp 2006 ISBN 978-0-470-02152-1 €269.00/£210.00/CAD \$491.99/USD \$410.00
Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-02154-5

new



Green Chemistry and Catalysis

Roger Arthur Sheldon, Isabel Arends, *both of Delft Univ. of Technology, The Netherlands*; Ulf Hanefeld, *TU Delft, The Netherlands*

"This book is the clear choice for any chemical professional or graduate students seriously interested in the emerging field of green chemistry."—*Journal of the American Chemical Society*

The first book to focus on catalytic processes from the viewpoint of green chemistry! Written by Roger A. Sheldon and his coworkers, this is an indispensable resource for scientists looking to improve catalysis in both college and industry.

Hardcover 448 pp 2007 ISBN 978-3-527-30715-9 €145.00/£125.00/CAD \$239.99/USD \$200.00
Online Book. See ad on page 6 for ordering information. ISBN 978-3-527-61104-3

best seller



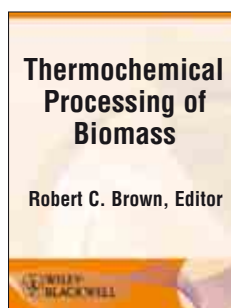
Multiphase Homogeneous Catalysis

TWO-VOLUME SET

Boy Cornils; Wolfgang A. Herrmann, *Technical Univ. Munich, Germany*; Istvan T. Horvath, *Eotvos Lorand Univ., Hungary*; Walter Leitner, *RWTH Aachen, Germany*; Stefan Mecking, *Albert-Ludwigs-Univ., Germany*; Hélène Olivier-Bourbigou, *Inst. Français du Pétrole, France*; Dieter Vogt, *Eindhoven Univ. of Technology, The Netherlands*; Editors

This long-awaited two-volume handbook is the one-stop reference for everybody working in the field of multiphase catalysis. Covering academic and industrial applications, it will set the standard for future developments. All editors are top scientists with an industrial or academic background and have put together an international team to present every facet of this fascinating methodology in a compact and competent manner.

Hardcover 905 pp 2005 ISBN 978-3-527-30721-0 €339.00/£290.00/CAD \$587.99/USD \$490.00
Online Book. See ad on page 6 for ordering information. ISBN 978-3-527-61959-7



Thermochemical Processing of Biomass

Robert C. Brown, *Iowa State Univ.*; Editor

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

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

WILEY SERIES IN RENEWABLE RESOURCE

Hardcover 360 pp 2010 ISBN 978-0-470-72111-7 €109.00/£85.00/CAD \$174.00/USD \$145.00



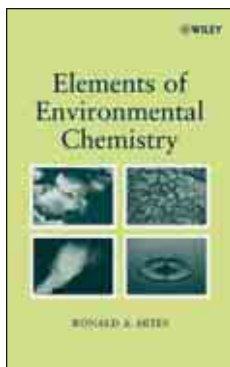
Biomass Recalcitrance

Michael Himmel, Editor

Alternative and renewable fuels derived from lignocellulosic biomass offer a promising alternative to conventional energy sources and provide energy security, economic growth, and environmental benefits. This book examines the connection between biomass structure, ultrastructure, and composition vis-a-vis resistance to enzymatic deconstruction, with the aim

of discovering new cost-effective technologies for biorefineries. It contains chapters on topics relevant to the highest levels of biorefinery design and biomass life-cycle analysis to detailed aspects of plant cell wall structure, chemical treatments, enzymatic hydrolysis, and product fermentation options.

Hardcover 528 pp 2008 ISBN 978-1-4051-6360-6 €115.00/£90.00/CAD \$215.99/USD \$180.00



Elements of Environmental Chemistry

Ronald A. Hites, *Indiana Univ.*

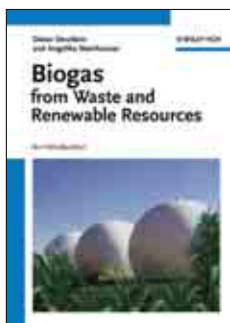
This hands-on guide uses real-world examples to master the quantitative aspects of environmental chemistry. Complex environmental issues are presented in simple terms to help readers grasp the basics and solve relevant problems. Topics covered include steady- and non-steady-state modeling,

chemical kinetics, stratospheric ozone, photochemical smog, the greenhouse effect, carbonate equilibria, the application of partition coefficients, pesticides, and toxic metals.

Paperback 224 pp 2007 ISBN 978-0-471-99815-0 €39.90/£30.50/CAD \$53.99/USD \$45.00

Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-14045-1

best
seller



Biogas from Waste and Renewable Resources

An Introduction

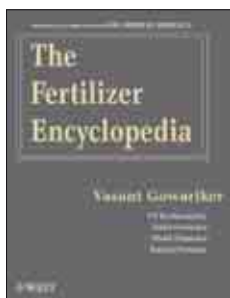
Dieter Deublein, *Munich Univ. of Applied Sciences, Munich, Germany*; Angelika Steinhauser, *Singapore*

Written as a practical introduction to biogas plant design and operation, this book fills a huge gap in the need for a coherent, systematic guide to this emerging technology—information

otherwise only available in poorly intelligible reports by US governmental and other official agencies. The authors draw on teaching material from a university course, as well as a wide variety of industrial biogas projects they have been involved with, thus combining didactic skill with real-life examples.

Hardcover 472 pp 2008 ISBN 978-3-527-31841-4 €109.00/£95.00/CAD \$191.99/USD \$160.00

Online Book. See ad on page 6 for ordering information. ISBN 978-3-527-62170-5



The Fertilizer Encyclopedia

Vasant G. Gowariker, V. N. Krishnamurthy, Sudha Gowariker, Manik Dhanorkar, Kalyani Paranjape

Featuring nearly 4,500 terms of interest to all scientists and researchers dealing with fertilizers, *The Fertilizer Encyclopedia* compiles a wealth of information on the chemical composition

of fertilizers and includes information on everything from manufacturing and applications to economical and environmental considerations. It covers behavior in soil, chemical and physical characteristics, physiological roles in plant growth and soil fertility, and more. It's the definitive, up-to-date reference on fertilizers you need.

Hardcover 880 pp 2008 ISBN 978-0-470-41034-9 €299.00/£233.00/CAD \$420.00/USD \$350.00

Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-43177-1

new



Biofuels

Wim Soetaert
Erik Vandamme
Editors

Biofuels

Wim Soetaert, Erik Vandamme, *both of Ghent Univ., Belgium*; Editors

Dealing specifically with liquid and gaseous biofuels that can be produced from renewable resources using different processes, *Biofuels* affords readers a broad overview of biofuel developments from both a technical angle and an economical angle. It also contains a useful summary of the past, present, and future applications of biofuels, along with production

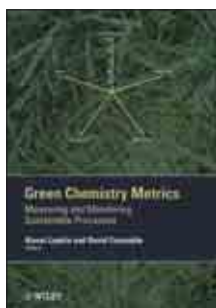
technologies. The book is particularly relevant as it highlights the ongoing global need to find alternative fuels and, as such, also addresses trends in prices, markets, and growth areas.

WILEY SERIES IN RENEWABLE RESOURCE

Hardcover 256 pp 2009 ISBN 978-0-470-02674-8 €82.90/£65.00/CAD \$156.00/USD \$130.00

Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-75410-8

new



Green Chemistry Metrics

Alexei Lapkin, David Constable, Editors

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

covered includes green product design, mass balances and life cycle assessment, process metrics, and tools and strategies for greening chemical inventories in small businesses.

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



Elements and their Compounds in the Environment

Occurrence, Analysis and Biological Relevance

THREE-VOLUME SET

SECOND, COMPLETELY REVISED AND ENLARGED EDITION

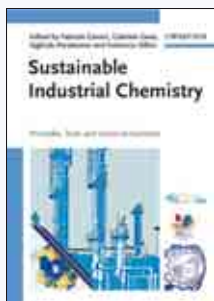
Ernest Merian; Manfred Anke, *formerly Univ. of Jena, Germany*; Milan Ihnat, *Pacific Agri-Food Research Centre, Canada*; Markus Stoeppler, *Consultant, Germany*; Editors

Since the last edition was published in 1991, the Merian has established itself as the standard refer-

ence on this topic and remains unmatched in the breadth of material covered. This new edition is more clearly structured and more emphasis is now given to nutritional aspects of the elements.

Hardcover 1806 pp 2004 ISBN 978-3-527-30459-2 €659.00/£560.00/CAD \$1085.99/USD \$905.00

Online Book. See ad on page 6 for ordering information. ISBN 978-3-527-61963-4



Sustainable Industrial Processes

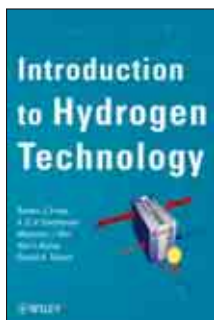
new

Gabriele Centi, Univ. of Messina, Italy; Ferruccio Trifiró, Univ. of Bologna, Italy; Siglinda Perathoner, Univ. of Messina, Italy; Fabrizio Cavani, Univ. of Bologna, Italy; Editors

There are various books on green chemistry on the market, but without focus on sustainable industrial processes. This resource provides an expert overview of the new trends

and hot topics in process design, describing the challenge of designing industrial chemical processes that are up-to-date, sustainable, and economically feasible. The industrial applications are presented directly by the companies—a veritable Who's Who of the chemical industry—that developed these innovative technologies.

Hardcover 584 pp 2010 ISBN 978-3-527-31552-9 €159.00/£140.00/CAD \$234.00/USD \$195.00



Introduction to Hydrogen Technology

Roman J. Press, K. S. V. Santhanam, Massoud J. Miri, Alla V. Bailey, Gerald A. Takacs

Stressing clean sources of energy, theories of fuel cell operation, hydrogen infrastructure, and devices that use hydrogen, *Introduction to Hydrogen Technology* prepares readers for future challenges in the areas of energy generation, consumption, and the commercializa-

tion of hydrogen-powered applications. Among its many benefits, this text: • Provides basic knowledge about renewable energy • Explains the chemistry of fuel cell performance • Introduces the fundamentals of hydrogen production.

Hardcover 308 pp 2008 ISBN 978-0-471-77985-8 €77.90/£60.50/CAD \$107.95/USD \$89.95
Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-36820-6



Membrane Technology

VOLUME 2

Membranes for Energy Conversion

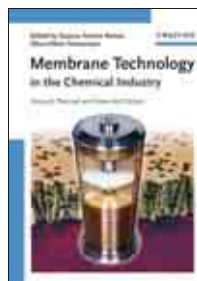
Klaus-Viktor Peinemann, Suzana Pereira Nunes, both of GKSS Forschungszentrum, Germany; Editors

Focusing on recent developments in innovative energy conversion, this second *Membrane Technology* addresses emerging applications with the capacity to transform the entire energy economy. Specific examples

include the development of sulfonated polyarylether-type polymers as proton exchange membranes for high- and medium-temperature polymer electrode fuel cells (PEFC). It also includes an entire section on the rapidly expanding field of materials development for solid oxide fuel cells (SOFC). The result is a detailed and invaluable source of information for those involved in the chemical, material science, and engineering fields of power generation.

MEMBRANES

Hardcover 304 pp 2008 ISBN 978-3-527-31481-2 €149.00/£130.00/CAD \$257.99/USD \$215.00
Online Book. See ad on page 6 for ordering information. ISBN 978-3-527-62214-6



Membrane Technology

in the Chemical Industry

SECOND, REVISED AND ENLARGED EDITION

Suzana Pereira Nunes, Klaus-Viktor Peinemann, both of GKSS Forschungszentrum, Geesthacht, Germany; Editors

Membrane Technology is a clean and energy saving alternative to traditional/conventional processes. This book outlines several estab-

lished applications of membranes in the chemical industry, reviews the available membranes and membrane processes for the field, and discusses the huge potential of this technology in chemical processes.

Hardcover 354 pp 2006 ISBN 978-3-527-31316-7 €135.00/£115.00/CAD \$227.99/USD \$190.00
Online Book. See ad on page 6 for ordering information. ISBN 978-3-527-60878-2

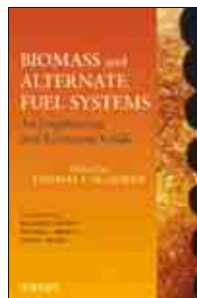


Identification of Cleaner Production Improvement Opportunities

Kenneth L. Mulholland

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

Hardcover 200 pp 2006 ISBN 978-0-471-79440-0 €64.90/£50.50/CAD \$89.99/USD \$74.95
Online Book. See ad on page 6 for ordering information. ISBN 978-0-471-97950-0



Biomass and Alternate Fuel Systems

new

An Engineering and Economic Guide

Thomas F. McGowan, Michael L. Brown, William S. Bulpitt, James L. Walsh, Editors

Provides readers with an understanding of these environmentally friendly fuels alongside step-by-step guidance for converting these fuels into energy. Case studies help readers understand how they can install and operate energy systems to reap all the benefits of biomass and alternate fuels.

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



Membranes in Clean Technologies

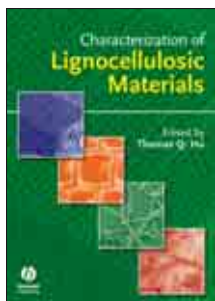
Theory and Practice

TWO-VOLUME SET

Andrzej Benedykt Koltuniewicz, Wrocław Univ. of Technology, Poland; Enrico Drioli, Univ. of Calabria, Italy

With well over 6,000 references, this guide shows you how to reengineer existing technologies and implement innovative processes. The first volume looks at the theory and engineering of membrane processes. The second deals with membranes in such industries as water, textiles, paper, pharmaceuticals, and food.

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



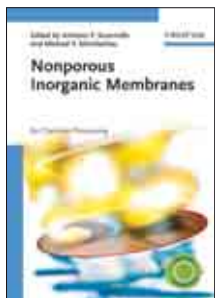
Characterization of Lignocellulosic Materials

Thomas Q. Hu, *Univ. of British Columbia; PPIinnovations; Editor*

Due to increasing economic and environmental issues concerning the use of petrochemicals, lignocellulosic materials will be relied upon as feedstock for the production of chemicals, fuels, and biocompatible materials. This text covers recent advances

in the characterization of wood, pulp fibers, and papers. It also describes the analyses of native and modified lignocellulosic fibers and materials using a range of advanced techniques such as time-of-flight secondary ion mass spectrometry, 2D heteronuclear single quantum correlation NMR, and Raman microscopy. A comprehensive survey of characterization methods for all those working in the fields of wood and paper, lignocelluloses-based composites and polymer blends, and bio-based fuels and materials.

Hardcover 392 pp 2008 ISBN 978-1-4051-5880-0 €139.00/£110.00/CAD \$239.99/USD \$199.99
Online Book. See ad on page 6 for ordering information. ISBN 978-1-4443-0542-5



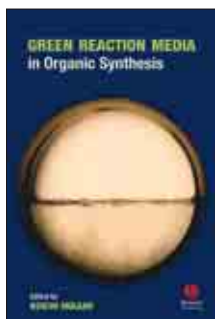
Nonporous Inorganic Membranes for Chemical Processing

Anthony F. Sammell, Michael V. Mundschau, *both of Eltron Research Inc., Boulder, USA; Editors*

This reference book addresses the evolution of materials for both oxygen and hydrogen transport membranes and offers strategies for their fabrication as well as

their subsequent incorporation into catalytic membrane reactors. Other chapters deal with, e.g., engineering design and scale-up issues, strategies for preparation of supported thin-film membranes, or interfacial kinetic and mass transfer issues.

Hardcover 291 pp 2006 ISBN 978-3-527-31342-6 €115.00/£100.00/CAD \$191.99/USD \$160.00
Online Book. See ad on page 6 for ordering information. ISBN 978-3-527-60879-9



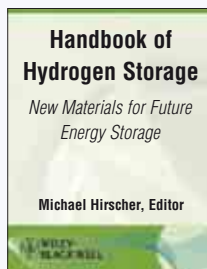
Green Reaction Media in Organic Synthesis

Koichi Mikami, *Tokyo Inst. of Technology; Editor*

"An unusual, but beneficial, aspect of this book is the experimental sections, which will be of value to those devising experimental courses." —Chemistry and Industry

Offers a broad overview of the three most commonly used green reaction media and provides sufficient information to allow selection of the most appropriate medium. Extensively referenced, the volume is a point of entry into more detailed literature.

Hardcover 200 pp 2005 ISBN 978-1-4051-3402-6 €129.00/£100.00/CAD \$227.99/USD \$189.99
Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-98877-0



Handbook of Hydrogen Storage

new

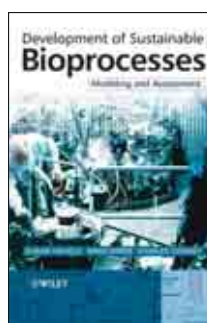
New Materials for Future Energy Storage

Michael Hirscher, *Max-Planck-Institut für Metallforschung, Germany; Editor*

This unique handbook on this hot topic provides an excellent overview of present technologies and focuses on the latest developments in the solid state storage of hydrogen, while tackling

one of the most important questions for alternative and environment-friendly energy carriers. Since neither the optimal storage mechanism nor the optimal material fulfilling all the requirements has been identified, this book presents the most probable materials and highlights both their advantages as well as their drawbacks.

Hardcover 390 pp 2010 ISBN 978-3-527-32273-2 €149.00/£130.00/CAD \$258.00/USD \$215.00



Development of Sustainable Bioprocesses

Modeling and Assessment

Elmar Heinze, *Univ. of Saarlabf, Germany; Arno P. Biwer, Technische Biochemie; Charles L. Cooney, Massachusetts Inst. of Technology, USA*

Development of Sustainable Bioprocesses

describes methodologies and supporting case studies for the evolution and implementation of sustainable bioprocesses. Practical and

industry-focused, the book begins with an introduction to the bioprocess industries and development procedures. Modeling procedures, a key feature of the book, are also covered prior to an overview of the key sustainability assessment methods in use (environmental, economic, and societal). The book also highlights case studies, which cover the development of bioprocesses in the pharmaceutical, food, fine chemicals, cosmetics, and bulk chemicals industries. Some selected case studies include: citric acid, biopolymers, antibiotics, biopharmaceuticals.

Hardcover w/CD-ROM 316 pp 2007 ISBN 978-0-470-01559-9 €119.00/£95.00/CAD \$227.99/USD \$190.00
Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-05891-6



Combustion Residues

Current, Novel and Renewable Applications

Michael Cox, *Univ. of Hertfordshire, UK; Henk Nugteren, Delft Univ. of Technology, The Netherlands; Mária Janssen-Jurkovičová, KEMA Nederland BV, The Netherlands; Editors*

The first book on novel products derived from the new generation of combustion ashes, *Combustion Residues* discusses the nature of ashes derived from coal co-combustion, biomass, and other fuels in traditional and stand-alone

power plants and municipal waste incinerators. It also provides thoughtful perspectives and technical information on the development of novel commercial products incorporating such ashes while addressing the importance of adopting environmentally friendly technical and environmental standards for the production and application of these products.

Hardcover 442 pp 2008 ISBN 978-0-470-09442-6 €129.00/£100.00/CAD \$239.99/USD \$200.00
Online Book. See ad on page 6 for ordering information. ISBN 978-0-470-09444-0

Industrial Biotechnology

Sustainable Growth and Economic Success

Wim Soetaert
Erick J. Vandamme
Editors



Describing all topics of white biotechnology admitted to the 7th EU Frame Programme and new industrial production processes aiming toward the Kyoto objectives, this comprehensive overview covers the technology, applications, economic potential, and implications for society. Directed at readers with a general interest in a specific technology, this is equally suitable as an introductory handbook to a wide range of industries, including chemicals, biotechnology and pharmaceuticals, food and feed, paper and pulp, personal care, energy, and agriculture.

Hardcover 500 pp 2010 ISBN 978-3-527-31442-3 €159.00/€140.00/CAD \$276.00/USD \$230.00

Industrial Biotechnology

new

Sustainable Growth and Economic Success

Wim Soetaert, Erick J. Vandamme,
both of Ghent Univ., Belgium; Editors

Describing all topics of white biotechnology admitted to the 7th EU Frame Programme and new industrial production processes aiming toward the Kyoto objectives, this comprehensive overview covers the technology, applications, economic potential, and implications for society. Directed at readers with a general interest in a specific technology, this is equally suitable as an introductory handbook to a wide range of industries, including chemicals, biotechnology and pharmaceuticals, food and feed, paper and pulp, personal care, energy, and agriculture.

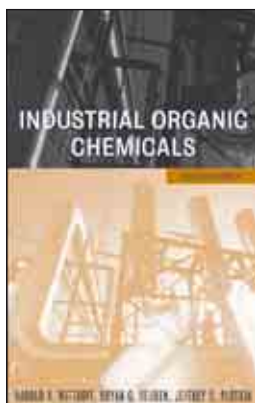
Describing all topics of white biotechnology admitted to the 7th EU Frame Programme and new industrial production processes aiming toward the Kyoto objectives, this comprehensive overview covers the technology, applications, economic potential, and implications for society. Directed at readers with a general interest in a specific technology, this is equally suitable as an introductory handbook to a wide range of industries, including chemicals, biotechnology and pharmaceuticals, food and feed, paper and pulp, personal care, energy, and agriculture.

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Industrial Organic Chemicals

SECOND EDITION

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G. Reuben, London South Bank
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ChemSystems Inc., USA



Industrial Organic Chemicals presents the chemistry of both large-scale and specialty products while taking into account important political, environmental, and economic considerations. It provides a narrative account of the evolution of today's industry from the viewpoint

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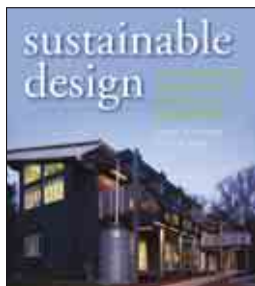
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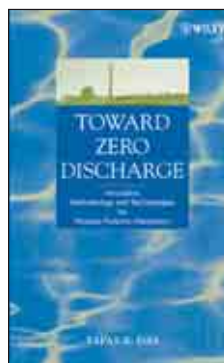
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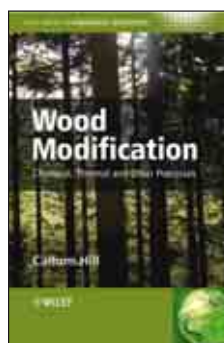
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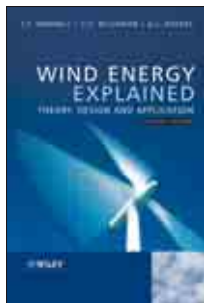


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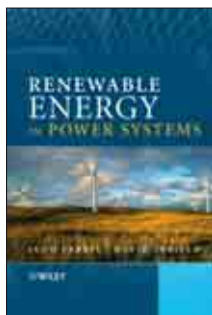
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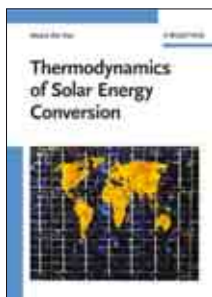
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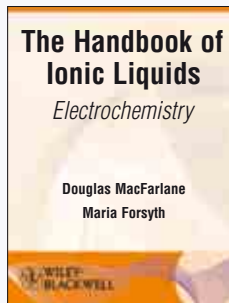
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The Handbook of Ionic Liquids

Electrochemistry

Douglas MacFarlane
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The Handbook of Ionic Liquids

Electrochemistry

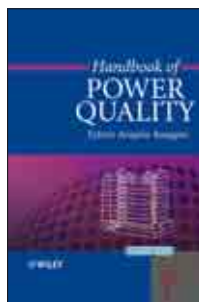
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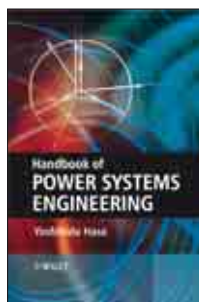
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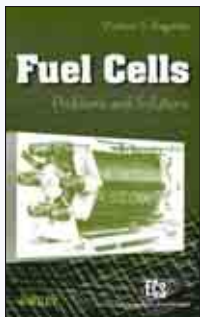
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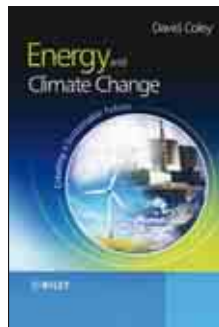
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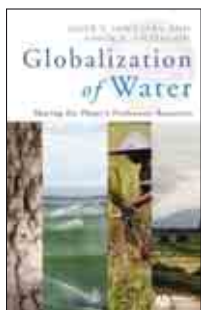
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Materials Innovations in an Emerging Hydrogen Economy

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Ceramic Transactions

VOLUME 202

G. Wicks, Jack Simon, Editors

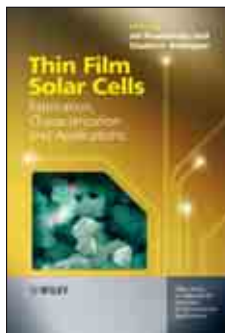
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Thin Film Solar Cells

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Jef Poortmans, Vladimir Arkhipov, both of IMEC, Belgium; Editors

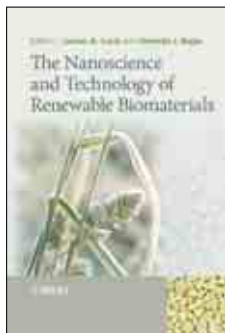
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The Nanoscience and Technology of Renewable Biomaterials

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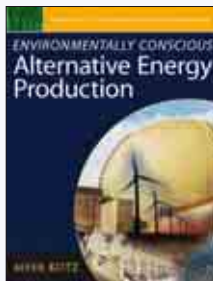
Lucian A. Lucia, Orlando Rojas, both of North Carolina State Univ., USA; Editors

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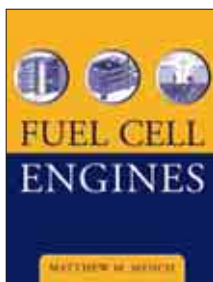
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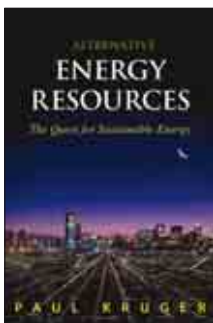
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