

## Pyrolysis Of Organic Molecules Applications To Health And Environmental Issues Techniques And Inst

Industrial Applications of Nanocrystals provides an overview of the properties and industrial applications of nanocrystalline materials. Nanocrystals are a major driver of technology and business in this century and hold the promise of high-performance materials that will significantly affect all aspects of society. Likewise, nanocrystals are driving development and innovation in numerous manufacturing sectors. However, complications keep nanocrystals from making a greater impact on manufacturing. The lack of information as well as the possibility of adverse influences on the environment, human health, safety, and sustainability are still major challenges. This book addresses these challenges for the use of nanomaterials in major manufacturing sectors. The aim of this book is to deliver advances in the use of nanocrystals across various industrial sectors. Chapter topics include approaches to the synthesis and green synthesis of nanocrystals, and the applications of nanocrystals in the pharmaceutical, biomedical, environmental, catalysis, electrochemical energy storage device, and emerging industries. Outlines major properties and industrial applications of nanocrystals for a variety of industrial sectors Describes the major processing techniques for nanocrystals Assesses the major challenges to manufacturing nanocrystals on an industrial scale

Analytical pyrolysis is one of the many tools utilized for the study of natural organic polymers. This book describes in three parts the methodology of analytical pyrolysis, the results of pyrolysis for a variety of biopolymers, and several practical applications of analytical pyrolysis on natural organic polymers and their composite materials. Analytical pyrolysis methodology covers two distinct subjects, the instrumentation used for pyrolysis and the analytical methods that are applied for the analysis of the pyrolysis products. A variety of pyrolytic techniques and of analytical instruments commonly coupled with pyrolysis devices are given. The description of the results of pyrolysis for biopolymers and some chemically modified natural organic polymers is the core of the book. The main pyrolysis products of numerous compounds as well as the proposed mechanisms for their pyrolysis are described. In this part an attempt is made to present as much as possible the chemistry of the pyrolytic process of natural organic polymers. The applications of analytical pyrolysis include topics such as polymer detection used for example in forensic science, structure elucidation of specific polymers, and identification of small molecules present in polymers (anti-oxidants, plasticizers, etc.). Also, the degradation during heating is a subject of many practical applications regarding the physical properties of polymers. The applications to composite polymeric materials are in the fields of classification of microorganisms, study of fossil materials, etc. Analytical pyrolysis can also be used for obtaining information on the burning area generate pyrolysates that have complex compositions. Their analysis is important in connection with health issues, environmental problems, and taste of food and cigarettes. Features of this book: • Presents analytical pyrolysis as a uniform subject and not as a conglomerate of scientific papers. • Puts together in an organized manner a large volume of available information in this specific field. • Provides original results which address subjects with relatively scarce information in literature. • Gives original views on subjects such as the parallel between the pyrolytic process and the ion fragmentation in mass spectrometry. • Includes the role of pyrolysis in the burning process. The three parts of the book are covered in 18 chapters, each divided into sections. Some sections are further divided by particular subjects. References are given for each chapter, and an effort has been made to include as much as possible from the available representative information. A few unpublished personal results are also included.

Nitrogen Compounds—Advances in Research and Application: 2013 Edition is a ScholarlyBrief™ that delivers timely, authoritative, comprehensive, and specialized information about ZZZAdditional Research in a concise format. The editors have built Nitrogen Compounds—Advances in Research and Application: 2013 Edition on the vast information databases of ScholarlyNews™. You can expect the information about ZZZAdditional Research in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Nitrogen Compounds—Advances in Research and Application: 2013 Edition has been produced by the world ' s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Comprehensive Energy Systems provides a unified source of information covering the entire spectrum of energy, one of the most significant issues humanity has to face. This comprehensive book describes traditional and novel energy systems, from single generation to multi-generation, also covering theory and applications. In addition, it also presents high-level coverage on energy policies, strategies, environmental impacts and sustainable development. No other published work covers such breadth of topics in similar depth. High-level sections include Energy Fundamentals, Energy Materials, Energy Production, Energy Conversion, and Energy Management. Offers the most comprehensive resource available on the topic of energy systems Presents an authoritative resource authored and edited by leading experts in the field Consolidates information currently scattered in publications from different research fields (engineering as well as physics, chemistry, environmental sciences and economics), thus ensuring a common standard and language

Scientific and Technical Aerospace Reports

Comprehensive Energy Systems

Energy Research Abstracts

Pyrolytic Methods in Organic Chemistry

Fundamentals, Characterization, and Applications

Synthesis, Mechanisms, and Kinetics

There is increasing recognition that low-cost, high capacity processes for the conversion of biomass into fuels and chemicals are essential for expanding the utilization of carbon neutral processes, reducing dependency on fossil fuel resources, and increasing rural income. While much attention has focused on the use of biomass to produce ethanol via fermentation, high capacity processes are also required for the production of hydrocarbon fuels and chemicals from lignocellulosic biomass. In this context, this book provides an up-to-date overview of the thermochemical methods available for biomass conversion to liquid fuels and chemicals. In addition to traditional conversion technologies such as fast pyrolysis, new developments are considered, including catalytic routes for the production of liquid fuels from carbohydrates and the use of ionic liquids for lignocellulose utilization. The individual chapters, written by experts in the field, provide an introduction to each topic, as well as describing recent research developments.

Offers a physical organic chemistry and mechanistic perspective of the chemistry of thermal processes in the gas phase The book looks at all aspects of the chemical processing technique called gas-phase pyrolysis, including its methodology and reactors, synthesis, reaction mechanisms, structure, kinetics, and applications. It discusses combinations of pyrolytic reactors with physicochemical techniques, routes for and reactions for the synthesis of organic compounds, and the control of reaction rates. Gas-Phase Pyrolytic Reactions: Synthesis, Mechanisms, and Kinetics starts with in-depth chapter coverage of static pyrolysis, dynamic flow pyrolysis, and analytical pyrolysis. It then examines synthesis and analysis of flash vacuum pyrolysis in organic synthesis, elimination of HX, elimination of CO and CO<sub>2</sub>, pyrolysis of Meldrum ' s acid derivatives, and elimination of N<sub>2</sub>. A chapter on reaction mechanism comes next and includes coverage of retro-ene reaction and reactive intermediates. Following that are sections covering: structure/reactivity correlation, functional group & structural frame interconversions; gas-phase pyrolysis of hydrazones and phosphorus Ylides; and more. Deals with a growing area of chemistry and engineering interest that fits under the practices of green and sustainable chemistry Addresses several important aspects: methodology and reactors, synthesis, reaction mechanisms, structure, kinetics, and applications Reviews general methods of pyrolysis techniques Sets out the fundamentals and advantages of gas-phase pyrolysis in a way that illustrates its wide potential applications Gas-Phase Pyrolytic Reactions: Synthesis, Mechanisms, and Kinetics will appeal to organic chemists, physical organic chemists, chemical engineers and anyone interested in green/sustainable chemistry, chemical synthesis, or process chemistry.

Analytical pyrolysis allows scientists to use routine laboratory instrumentation for analyzing complex, opaque, or insoluble samples more effectively than other analytical techniques alone. Applied Pyrolysis Handbook, Second Edition is a practical guide to the application of pyrolysis techniques to various samples and sample types for a diversity of fields including microbiology, forensic science, industrial research, and environmental analysis. This second edition incorporates recent technological advances that increase the technique ' s sensitivity to trace elements, improve its reproducibility, and expand its applicability. The book reviews the types of instrumentation available to perform pyrolysis and offers guidance for interfacing instruments and integrating other analytical techniques, including gas chromatography and mass spectrometry. Fully updated with new sample programs, figures, references, and real-world examples, this edition also highlights new areas of application including surfactants, historical artifacts, and environmental materials. This book illustrates how the latest advances make pyrolysis a practical, cost-effective, reliable, and flexible alternative for increasingly complex sample analyses. Applied Pyrolysis Handbook, Second Edition is an essential, one-stop guide for determining if pyrolysis meets application-specific needs as well as performing pyrolysis and handling the data obtained.

Metal–organic frameworks (MOFs) are porous crystalline polymers constructed by metal sites and organic building blocks. Since the discovery of MOFs in the 1990s, they have received tremendous research attention for various applications due to their high surface area, controllable morphology, tunable chemical properties, and multifunctionalities, including MOFs as precursors and self-sacrificing templates for synthesizing metal oxides, heteroatom-doped carbons, metal-atoms encapsulated carbons, and others. Thus, awareness and knowledge about MOFs and their derived nanomaterials with conceptual understanding are essential for the advanced material community. This breakthrough new volume aims to explore new-to-earth applications in fields such as biomedical, environmental, energy, and electronics. This book provides an overview of the structural and fundamental properties, synthesis strategies, and versatile applications of MOFs and their derived nanomaterials. It gives an updated and comprehensive account of the research in the field of MOFs and their derived nanomaterials. Whether as a reference for industry professionals and nanotechnologists or for use in the classroom for graduate and postgraduate students, faculty members, and research and development specialists working in the area of inorganic chemistry, materials science, and chemical engineering, this is a must-have for any library.

Thermochemical Conversion of Biomass to Liquid Fuels and Chemicals

Three Volume Set

Encyclopedia of Environmental Change

Based on Invited Papers and Discussion

Liquid Biofuels

Applications of Synchrotron Radiation in Low-Temperature Geochemistry and Environmental Science

A comprehensive examination of the large number of possible pathways for converting biomass into fuels and power through thermochemical processes Bringing together a widely scattered body of information into a single volume, this book provides complete coverage of the many ways that thermochemical processes are used to transform biomass into fuels, chemicals and power. Fully revised and updated, this new edition highlights the substantial progress and developments that have been made in this rapidly growing field since the publication of the first edition and incorporates up-to-date information in each chapter. Thermochemical Processing of Biomass: Conversion into Fuels, Chemicals and Power, 2nd Edition incorporates two new chapters covering: condensed phased reactions of thermal deconstruction of biomass and life cycle analysis of thermochemical processing systems. It offers a new introductory chapter that provides a more comprehensive overview of thermochemical technologies. The book also features fresh perspectives from new authors covering such evolving areas as solvent liquefaction and hybrid processing. Other chapters cover combustion, gasification, fast pyrolysis, upgrading of syngas and bio-oil to liquid transportation fuels, and the economics of thermochemically producing fuels and power, and more. Features contributions by a distinguished group of European and American researchers offering a broad and unified description of thermochemical processing options for biomass Combines an overview of the current status of thermochemical biomass conversion as well as engineering aspects to appeal to the broadest audience Edited by one of Biofuels Digest's "Top 100 People" in bioenergy for six consecutive years Thermochemical Processing of Biomass: Conversion into Fuels, Chemicals and Power, 2nd Edition will appeal to all academic researchers, process chemists, and engineers working in the field of biomass conversion to fuels and chemicals. It is also an excellent book for graduate and advanced undergraduate students studying biomass, biofuels, renewable resources, and energy and power generation.

This handbook of Soil Science provides a resource rich in data that gives professional soil scientists, agronomists, engineers, ecologists, biologists, naturalists, and their students a handy reference about the discipline of soil science. This handbook serves professionals seeking specific, factual reference information. Each subsection includes a description of concepts and theories; definitions; approaches; methodologies and procedures; tabular data; figures; and extensive references.

This text provides training on the fundamental tools and methodologies used in active forensic laboratories for the complicated analysis of fire debris and explosives evidence. It is intended to serve as a gateway for students and transitioning forensic science or chemistry professionals. The book is divided between the two disciplines of fire debris and explosives, with a final pair of chapters devoted to the interplay between the two disciplines and with other disciplines, such as DNA and fingerprint analysis. It brings together a multi-national group of technical experts, ranging from academic researchers to active practitioners, including members of some of the premier forensic agencies of the world. Readers will gain knowledge of practical methods of analysis and will develop a strong foundation for laboratory work in forensic chemistry. End-of-chapter questions based on relevant topics and real-world data provide a realistic arena for learners to test newly-acquired techniques.

Analytical Pyrolysis of Synthetic Organic Polymers is a follow-up to Analytical Pyrolysis of Natural Organic Polymers, which is volume 20 of the series. The main focus of the book is on practical applications of analytical pyrolysis in synthetic organic polymer identification and characterization. The first part of the book has five chapters including an introduction, a discussion on physico-chemistry of thermal degradation of synthetic polymers and on instrumentation used in analytical pyrolysis, a chapter discussing what type of information can be obtained from analytical pyrolysis, and a chapter dedicated to the analysis and characterization of synthetic polymers. The second part systematically covers the analytical pyrolysis of various classes of synthetic polymers. Some theoretical background for the understanding of polymer structure using analytical pyrolysis is also discussed. • Includes broad coverage of organic synthetic macromolecules • Focuses on physico-chemistry of thermal degradation, and the analytical pyrolysis of various classes of synthetic polymers • Is well written and suitable for both researchers and chemists working in analytical chemistry or in synthetic polymers

Handbook of Soil Science

Chemical Methods in Gas Chromatography

Gas-Phase Pyrolytic Reactions

Practical Applications in Landscape Design

Early Organic Evolution

Air Pollution Abstracts

This volume is the final outcome of a conference designed to wrap up IOCOP Project 157 (" Early Organic Evolution and Mineral and Energy Resources ") after a decade of prolific activity. The picturesque solitude of Maria Laach Abbey in the Eifel Mountains (FRG) provided the appropriate setting for a conclave of some 80 specialists from the various walks of the field who, during the week of Sept. 19 - 23, 1988, stroived hard to define the state of the art in the principal segments of this Earth Science frontier. The following pages contain the essence of the conference transactions, giving a vivid cross-section of the activities pursued by IOCOP Project 157 during its final years. The coverage of topics is not necessarily complete, but rather eclectic in part. With regard to single papers dealing with modern analogues of ancient processes, the book title might even be considered a grave misnomer. Nevertheless, all contributions relate to the subject in the widest sense, and the reader should be reminded that much of the heterogeneity reflected by the volume de rivs from the fact that it is primarily a research report from a highly inter disciplinary field rather than a textbook.

This book, "provides practical and applied information on sustainable and regenerative principles, as well as techniques for analyzing and implementing these principles into the design of a structure of life. The text is intended for students and researchers, but anyone interested in green technology, Advanced Biofuels and Bioproducts offers the reader a vast overview of the state-of-the-art in renewable energies. The typical chapter sets out to explain the fundamentals of a new technology as well as providing its context in the greater field. With contributions from nearly 100 leading researchers across the globe, the text serves as an important and timely look into this rapidly expanding field. The 40 chapters that comprise Advanced Biofuels and Bioproducts are handily organized into the following 8 sections: • Introduction and Brazil's biofuel success • Smokeless biomass pyrolysis for advanced biofuels production and global biochar carbon sequestration • Cellulosic Biofuels • Photobiological production of advanced biofuels with synthetic biology • Lipid-based biodiesels • Life-cycle energy and economics analysis • High-value lipid products and biomethane • Electrofuels

Ethers—Advances in Research and Application: 2012 Edition is a ScholarlyBrief™ that delivers timely, authoritative, comprehensive, and specialized information about Ethers in a concise format. The editors have built Ethers—Advances in Research and Application: 2012 Edition on the vast information databases of ScholarlyNews™. You can expect the information about Ethers in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Ethers—Advances in Research and Application: 2012 Edition has been produced by the world ' s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Rate Constant Calculations for Thermal Reactions

Nitrogen Compounds—Advances in Research and Application: 2013 Edition

Alkanes—Advances in Research and Application: 2013 Edition

Greener Organic Transformations

Conversion into Fuels, Chemicals and Power

Analytical Pyrolysis of Synthetic Organic Polymers

This book contains an overview of novel synthesis, characterization, and applications of nanomaterials. Based on an extensive state-of-the-art literature survey and the results obtained by researchers during the past years, this book presents techniques and special applications of classical and modern nanomaterials focus on environmental remediation and preservation. It summarizes up-to-date synthesis and characterization of diverse materials applied to the modern environment concerns such as zero-valent iron soil remediation, photochromic materials for water treatment, carbon nanotubes for gas sensing, photocatalysis, among others. This book is aimed at students, researchers, and engineers who seek general scientific knowledge about nanomaterials with an application-oriented approach. Advances in Nanotechnology Research and Application / 2012 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Nanotechnology. The editors have built Advances in Nanotechnology Research and Application / 2012 Edition on the vast information databases of ScholarlyNews™. You can expect the information about Nanotechnology in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Advances in Nanotechnology Research and Application / 2012 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Semiannual, with semiannual and annual indexes. References to all scientific and technical literature coming from DOE, its laboratories, energy centers, and contractors. Includes all works deriving from DOE, other related government-sponsored information, and foreign nonnuclear information. Arranged under 39 categories, e.g., Biomedical sciences, basic studies; Biomedical sciences, applied studies; Health and safety; and Fusion energy. Entry gives bibliographical information and abstract. Corporate, author, subject, report number indexes.

Volume 49 of *Reviews in Mineralogy and Geochemistry* reviews the state of the art of synchrotron radiation applications in low temperature geochemistry and environmental science, and offer speculations on future developments. The reader of this volume will acquire an appreciation of the theory and applications of synchrotron radiation in low temperature geochemistry and environmental science, as well as the significant advances that have been made in this area in the past two decades. It gives a fairly comprehensive overview of synchrotron radiation applications in low temperature geochemistry and environmental science, describes the ways that synchrotron radiation is generated, including a history of synchrotrons and a discussion of aspects of synchrotron radiation that are important to the experimentalist, describes specific synchrotron methods that are most useful for single-crystal surface and mineral-fluid interface studies as well as methods that can be used more generally for investigating complex polyphase fine-grained or amorphous materials, including soils, rocks, and organic matter.

Aldehydes—Advances in Research and Application: 2013 Edition

Techniques and Applications

Industrial Applications of Nanocrystals

Methods and Applications

Applications to Health and Environmental Issues

Handbook of Carbon-Based Nanomaterials

Accessibly written by a team of international authors, the Encyclopedia of Environmental Change provides a gateway to the complex facts, concepts, techniques, methodology and philosophy of environmental change. This three-volume set illustrates and examines topics within this dynamic and rapidly changing interdisciplinary field. The encyclopedia includes all of the following aspects of environmental change: Diverse evidence of environmental change, including climate change and changes on land and in the oceans Underlying natural and anthropogenic causes and mechanisms Wide-ranging local, regional and global impacts from the polar regions to the tropics Responses of geosystems and human-environmental systems in the face of past, present and future environmental change Approaches, methodologies and techniques used for reconstructing, dating, monitoring, modelling, projecting and predicting change Social, economic and political dimensions of environmental issues, environmental conservation and management and environmental policy Over 4,000 entries explore the following key themes and more: Conservation Demographic change Environmental management Environmental policy Environmental security Food security Glaciation Green Revolution Human impact on environment Industrialization Landuse change Military impacts on environment Mining and mining impacts Nuclear energy Pollution Renewable resources Solar energy Sustainability Tourism Trade Water resources Water security Wildlife conservation The comprehensive coverage of terminology includes layers of entries ranging from one-line definitions to short essays, making this an invaluable companion for any student of physical geography, environmental geography or environmental sciences.

Providing an overview of the latest computational approaches to estimate rate constants for thermal reactions, this book addresses the theories behind various first-principle and approximation methods that have emerged in the last twenty years with validation examples. It presents in-depth applications of those theories to a wide range of basic and applied research areas. When doing modeling and simulation of chemical reactions (as in many other cases), one often has to compromise between higher-accuracy/higher-precision approaches (which are usually time-consuming) and approximate/lower-precision approaches (which often has the advantage of speed in providing results). This book covers both approaches. It is augmented by a wide-range of applications of the above methods to fuel combustion, unimolecular and bimolecular reactions, isomerization, polymerization, and to emission control of nitrogen oxides. An excellent resource for academics and industry members in physical chemistry, chemical engineering, and related fields.

Green chemistry progresses from being a driver for change in the chemical and allied industries to being a critical part of chemical education at all levels. The future chemist must be able to practice their trade in the light of increasing concerns about waste and resources, the safety of chemicals in consumer product, and increasingly restrictive legislation. While there are green chemistry educational resources available including lectures and experiments as well as numerous books on green chemistry and major green chemical technologies, there is no "green equivalent" of standard organic chemistry textbook Systematically covering a variety of well-known reactions that commonly feature in standard organic textbooks this book supplements and supports the standard organic chemistry texts. It highlights the main sustainability issues of classical and contemporary organic transformations and critically evaluates them within a metric of established Green Chemistry Principles noting where additional efforts are needed to improve their environmental footprint. Written by a team of expert authors with a multinational advisory board, this book is a fantastic resource for advanced undergraduate and postgraduate students worldwide.

Pyrolytic Methods in Organic Chemistry: Application of Flow and Flash Vacuum Pyrolytic Techniques is concerned with the use of flow pyrolysis and flash vacuum pyrolysis in preparative organic chemistry. Topics covered include pyrolytic generation and reactions of free radicals, arynes, and cyclobutadienes; elimination reactions; rearrangements of carbenes and nitrenes in the gas phase; and fragmentation of cyclic and acyclic structures. Examples of the types of reaction for which flow and flash pyrolytic methods are well suited are provided. This book is comprised of nine chapters and begins by discussing the place of flow and flash vacuum pyrolytic methods in organic chemistry. The next chapter gives an account of apparatus and experimental methods, while the remaining chapters focus on pyrolytic reactions that are grouped together according to the nature of the overall process, the formal structure of the starting material, and mechanistic type. Reactions that are formally related because they involve elimination of a small fragment molecule X-X or X-Y from a larger molecular framework are examined, along with cleavage of carbocyclic systems. The final chapter presents examples of high-temperature rearrangements, focusing on electrocyclic reactions and cycloadditions involving mainly four or six electrons; reactions that proceed through diradical intermediates; and isomerizations of heterocyclic rings. This monograph is intended mainly for synthetic organic chemists and for advanced undergraduate and graduate students.

Designation of Dredged Material Disposal Sites in Central and Western Long Island Sound, Connecticut and New York

Pyrolysis-gas Chromatography: Mass Spectrometry of Polymeric Materials

Applications of Metal-Organic Frameworks and Their Derived Materials

Implications for Mineral and Energy Resources

Handbook of Bond Dissociation Energies in Organic Compounds

Pyrolysis of Organic Molecules

The methodology of analytical pyrolysis-GC/MS has been known for several years, but is seldom used in research laboratories and process control in the chemical industry. This is due to the relative difficulty of interpreting the identified pyrolysis products as well as the variety of them. This book contains full identification of several classes of polymers/copolymers and biopolymers that can be very helpful to the user. In addition, the practical applications can encourage analytical chemists and engineers to use the techniques explored in this volume.The structure and the functions of various types of pyrolyzers and the results of the pyrolysis-gas chromatographic-mass spectrometric identification of synthetic polymers/copolymers and biopolymers at 700°C are described. Practical applications of these techniques are also included, detailing the analysis of microplastics, failure analysis in the automotive industry and solutions for technological problems.

Good.No Highlights.No Markup.all pages are intact. Slight Shelfwear.may have the corners slightly dented, may have slight color changes/slightly damaged spine.

Handbook of Carbon-Based Nanomaterials provides a comprehensive overview of carbon-based nanomaterials and recent advances in these specialized materials. This book opens with a brief introduction to carbon, including the different forms of carbon and their range of uses. Each chapter systematically covers a different type of carbon-based nanomaterial, including its individual characteristics, synthesis techniques and applications in industry, biomedicine and research. This book offers a broad handbook on carbon-based nanomaterials, detailing the materials aspects, applications and recent advances of this expansive topic. With its local, regional and global impacts from the polar regions to the tropics Responses of geosystems and human-environmental systems in the face of past, present and future environmental change Approaches, methodologies and techniques used for reconstructing, dating, monitoring, modelling, projecting and predicting change Social, economic and political dimensions of environmental issues, environmental conservation and management and environmental policy Over 4,000 entries explore the following key themes and more: Conservation Demographic change Environmental management Environmental policy Environmental security Food security Glaciation Green Revolution Human impact on environment Industrialization Landuse change Military impacts on environment Mining and mining impacts Nuclear energy Pollution Renewable resources Solar energy Sustainability Tourism Trade Water resources Water security Wildlife conservation The comprehensive coverage of terminology includes layers of entries ranging from one-line definitions to short essays, making this an invaluable companion for any student of physical geography, environmental geography or environmental sciences.

Pyrolysis of Organic Molecules: Applications to Health and Environmental Issues, Second Edition offers a systematic presentation of pyrolysis results for the main classes of non-polymeric organic molecules. It covers a large body of data published on pyrolysis, as well as numerous original contributions to the pyrolysis of compounds not previously studied. This thoroughly revised edition contains new results reported in the literature since the first edition published, including the generation of traces of toxic compounds in various pyrolytic processes; the pyrolysis in the presence of catalysts and solid supports such as alumina, silica, and non-inert metals; and pyrolysis of specific mixtures of compound such as amino acids plus carbohydrates. This new information regarding the pyrolysis of these mixtures has greatly improved the utility of the book, making Pyrolysis of Organic Molecules an essential resource for chemists and chemical engineers involved in processes related to pyrolysis, as well as toxicologists and environmentalists. Presents new information on the pyrolysis of specific compounds Includes data on the mechanisms and kinetics of pyrolytic processes Provides data on the influence of catalysts and solid supports on pyrolytic processes

Advanced Biofuels and Bioproducts

Thermochemical Processing of Biomass

The Mechanisms of Pyrolysis, Oxidation, and Burning of Organic Materials

Environmental Impact Statement

Advances in Nanotechnology Research and Application: 2012 Edition

Analytical Pyrolysis

Alkanes—Advances in Research and Application: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Methane. The editors have built Alkanes—Advances in Research and Application: 2013 Edition on the vast information databases of ScholarlyNews™. You can expect the information about Methane in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Alkanes—Advances in Research and Application: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Compiled by a well-known expert in the field, Liquid Biofuels provides a profound knowledge to researchers about biofuel technologies, selection of raw materials, conversion of various biomass to biofuel pathways, selection of suitable methods of conversion, design of equipment, selection of operating parameters, determination of chemical kinetics, reaction mechanism, preparation of bio-catalyst; its application in bio-fuel industry and characterization techniques, use of nanotechnology in the production of biofuels from the root level to its application and many other exclusive topics for conducting research in this area. Written with the objective of offering both theoretical concepts and practical applications of those concepts, Liquid Biofuels can be both a first-time learning experience for the student facing these issues in a classroom and a valuable reference work for the veteran engineer or scientist. The description of the detailed characterization methodologies along with the precautions required during analysis are extremely important, as are the detailed description about the ultrasound assisted biodiesel production techniques, aviation biofuels and its characterization techniques, advance in algal biofuel techniques, pre-treatment of biomass for biofuel production, preparation and characterization of bio-catalyst, and various methods of optimization. The book offers a comparative study between the various liquid biofuels obtained from different methods of production and its engine performance and emission analysis so that one can get the utmost idea to find the better biofuel as an alternative fuel. Since the book covers almost all the field of liquid biofuel production techniques, it will provide advanced knowledge to the researcher for practical applications across the energy sector. A valuable reference for engineers, scientists, chemists, and students, this volume is applicable to many different fields, across many different industries, at all levels. It is a must-have for any library.

Chemical Methods in Gas Chromatography Aldehydes—Advances in Research and Application: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Acetaldehyde. The editors have built Aldehydes—Advances in Research and Application: 2013 Edition on the vast information databases of ScholarlyNews™. You can expect the information about Acetaldehyde in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Aldehydes—Advances in Research and Application: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Applications of Biochar for Environmental Safety

Ethers—Advances in Research and Application: 2012 Edition

Agroindustrial Waste for Green Fuel Application

Regenerative Design Techniques

Forensic Analysis of Fire Debris and Explosives

ScholarlyBrief

This book focuses on chemical syntheses and processes for biofuel production mediated by microwave energy. This is the first contribution in this area serving as a resource and guidance manual for understanding the principles, mechanisms, design, and applications of microwaves in biofuel process chemistry. Green chemistry of microwave-mediated biofuel reactions and thermodynamic potentials for the process biochemistry are the focus of this book. Microwave generation, wave propagation, process design, development and configurations, and biofuel applications are discussed in detail. Biochar is a carbon-rich material produced from the pyrolysis of organic materials from agricultural and forestry biomass at a relatively low temperature in the absence of oxygen. As such, it has potential for solving many agricultural and environmental problems. This book is divided into five sections: "Introduction," "Production and Legislation of Biochar," "Applications of Biochar for Soil Fertility Improvement," "Role of Biochar for Soil Remediation and Ameliorating Salinity Effects" and "Applications of Biochar for Water Treatment." Chapters address topics such as the pros and cons of biochar, its production, and its role in remediating and treating contaminated soils and water.

The book revisit in depth scope of agroindustrial waste for enhancement in biofuels production on practical ground. It explores and discusses various cellulose rich agro-wastes along with low cost, advance technology based options for sustainable biofuels production. Lignocellulosic biomasses are potential producer of biofuels due to renewable nature and huge occurrence. Cellulose is the main polymeric component of these biomasses apart from lignin and hemicellulose. It can be converted into fermentable sugars using cellulase enzyme which can be further converted into the renewable energy sources such as biohydrogen, bioethanol, biogas and butanol. Chapters in this title provide exclusive and critical analysis of specific biofuels production process only from lignocellulosic biomass, based on their type, property, availability, cost and most important sugar or cellulose content along with the simplest process search for comparing these overall process more simple and economical. It is a useful guide for academicians and environmentalist who are working to explore feasible advantages associated with these kinds of waste management and their effective valorization. It is also a great resource for senior undergraduate and graduate students, researchers, professionals, and other interested individuals/groups working in the field of biofuel/bioenergy.

So many compounds, so many experiments reported by so many researchers using so many methods Finding reliable data on bond dissociation energies (BDEs) can be like looking for a needle in a haystack. But these data are crucial to work in chemical kinetics, free radical chemistry, organic thermochemistry, and physical organic chemistry—so where does Application of Flow and Flash Vacuum Pyrolytic Techniques Environmental Applications of Nanomaterials Analytical Pyrolysis of Natural Organic Polymers Microwave-Mediated Biofuel Production Applied Pyrolysis Handbook