



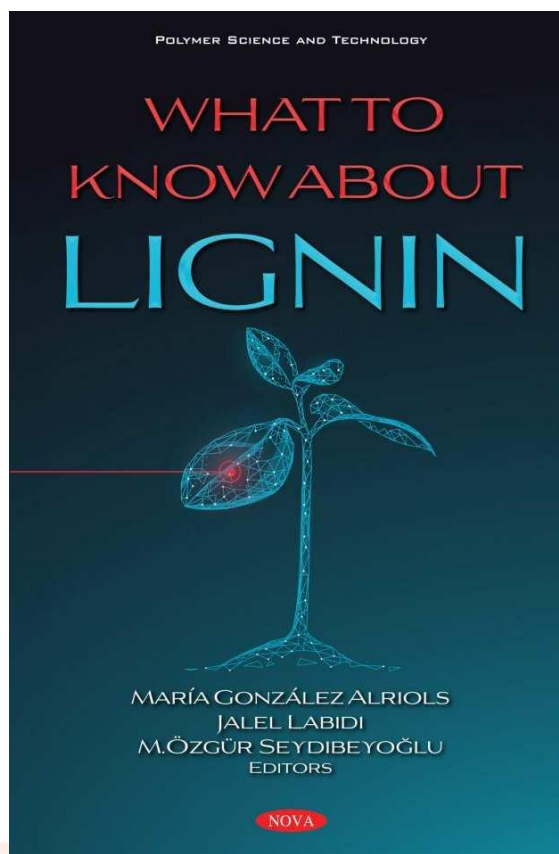
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CHEMISTRY



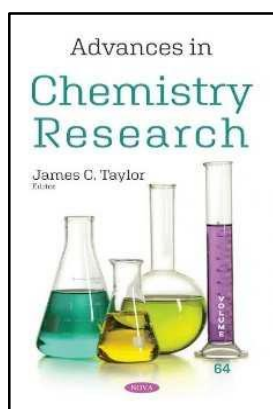
TITLES PUBLISHED BY NOVA SCIENCE

- Advances in Chemistry Research
- Biochemistry Research Trends
- Chemistry Research & Applications
- Geology & Mineralogy Research Developments
- Physics Research & Technology
- Polymer Science & Technology

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Advances in Chemistry Research



Advances in Chemistry Research

Edited by James C. Taylor

Advances in Chemistry Research. Volume 64 first focuses on the fluorescence detection or imaging of cupric ions by synthetic fluorescent probes. Major literature reports in the field of small molecules as fluorescent sensors for the detection of Cu^{2+} ions since 2011 till date are discussed. The authors provide a general overview of different types of click polymerizations and their membrane applications as high-performance polymers, with a special emphasis on the recent developments of CuAAC click polymerizations in their laboratory in the field of proton exchange membranes. Lastly, the latest achievements and prospects for applying the CuAAC reaction in the synthesis of biologically active steroids and triterpenoids are discussed. Steroids and triterpenoids are available and promising initial materials for the CuAAC reaction due to their wide biological activity, structural diversity, and abundance in nature.

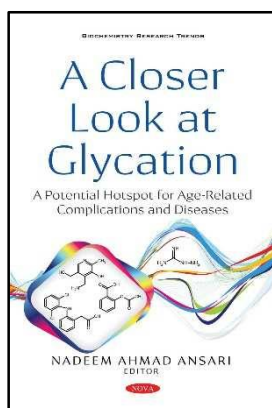
Volume 64 - HB 9781536185683 £221.99 October 2020 Nova Science Publishers 237 pages

Volume 65 - HB 9781536187113 £221.99 October 2020 Nova Science Publishers 261 pages

Volume 66 - HB 9781536188448 £221.99 December 2020 Nova Science Publishers 260 pages

Volume 67 - HB 9781536193381 £221.99 March 2021 Nova Science Publishers 245 pages

Biochemistry Research Trends



A Closer Look at Glycation

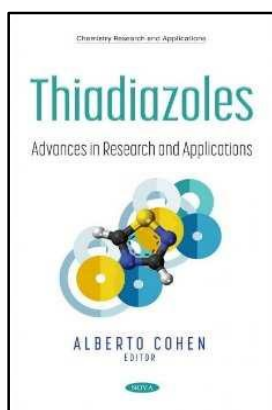
Edited by Nadeem Ahmad Ansari

This well-planned, logically structured and user-friendly book provides a useful insight into the world of non-enzymatic glycation from its early stages to an advanced level, with an eye on glycating agents, their enhancers and inhibitors. All chapters are of equal interest but the chapters on dietary AGEs and effects of AGEs on bone cells provide novelty in the area of glycation. These chapters also describe characterization of the glycation and its role in different types of age-related complications and diseases. A chapter on synthetic and plant-based natural inhibitors of glycation is also presented.

Written by a team of experts, this book makes the readers aware of the glycation process in various diseases and complications and creates enthusiasm in teaching key lessons to students of life and medical sciences. With the use of tables, figures and references, and a concise overview of the glycation mechanism and its inhibition on a single platform, this book is ideally suited as a resource for research and teaching purposes as well as contributes to knowledge of glycation inhibitors for controlling disease complications.

HB 9781536191769 £172.99 March 2021 Nova Science Publishers 254 pages

Chemistry Research & Applications



Thiadiazoles

Advances in Research and Applications

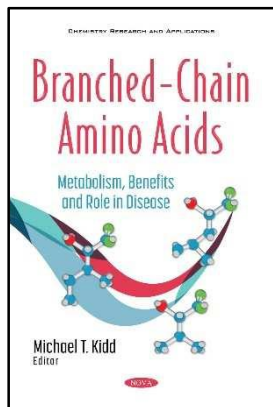
Edited by Alberto Cohen

Thiadiazoles: Advances in Research and Applications opens by discussing how, due to antioxidant properties, influence on muscarinic acetylcholine receptors, and inhibition of acetylcholinesterase activity, 1,2,4-thiadiazole-class compounds can be considered as potential drugs in the treatment of disorders connected with the central nervous system, such as Alzheimer's disease.

An overall review of the synthesis, biological activity, solubility, lipophilicity, and membrane permeability of a number of 1,2,4-thiadiazole derivatives with different substituents in the structure is presented.

Additionally, the authors provide an overview of the applications of thiadiazoles in the corrosion inhibition of metals and alloys. A detailed review of the literature on thiadiazole derivatives as corrosion inhibitors for acidic and neutral environments for different metallic substrates is also provided.

HB 9781536188783 £141.99 November 2020 Nova Science Publishers 214 pages

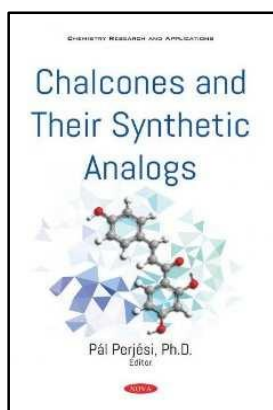


Branched-Chain Amino Acids Metabolism, Benefits and Role in Disease

Edited by Michael T. Kidd

The branched-chain amino acids are unique in chemical structure, metabolism, and that they are essential in the diet of both humans and monogastric food animals. Whether you are a health professional looking to increase your Knowledge of amino acid nutrition on disease, health, and aging, or an agriculture scientists looking to broaden your knowledge of factors influencing amino acid requirements, this text is a must. This book represents three diverse sections encompassing eleven chapters in total. Section one, being the largest, consist of six chapters addressing the role of branched-chain amino acids in domestic animal and human health. Endocrine and antioxidant systems affected by branched-chain amino acid status are presented, as well as biochemical and molecular mechanisms behind their responses. Moreover, the pros and cons of branched-chain amino acid therapy and balance in sports nutrition, catabolic injury recovery, disease, and successful aging are presented. The second and third sections of this text are similarly unique, in that they contain five chapters addressing diet needs, digestion, intestinal metabolism, absorption, and subsequent whole-body metabolism at the biochemical and molecular level. Further, two different meta-analyses have been composed using independent branched-chain amino acid data for assessment of food animal needs, in addition to providing insights for controlling metabolic homeostasis via diet formulation. Lastly, and specific for food animal production, the most limiting branched-chain amino acids in swine and poultry diets (e.g., valine and isoleucine) are poised to gain popularity and further price competitiveness in their crystalline L-amino acid forms, and thus, have tremendous environmental implications in terms of planetary nitrogen and water cycling.

HB 9781536188332 £203.99 January 2021 Nova Science Publishers 344 pages

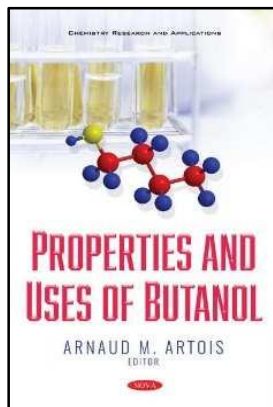


Chalcones and Their Synthetic Analogs

Edited by Pál Perjési

Chalcones is a collective name of natural and synthetic compounds with a 1,3-diaryl-2-propen-1-one moiety. Natural chalcones are biogenetic precursors of the flavonoids in higher plants. They belong to one of the major classes of naturally occurring compounds with widespread distribution in different plant families. Natural and synthetic chalcones display a wide variety of pharmacological effects, including antibacterial, antiprotozoal, antimalarial, anti-inflammatory activities, cytotoxicity towards cancer cell-lines, antitumor, and antitumor-promoting, activities. The chalcone scaffold is one of the natural privileged structures, which possess geometry suitable for decoration with side chains, such that the resulting products bind to different target proteins. The present contribution summarizes up-to-date summary of their synthetic methods, UV, IR and MS characterization, covalent and noncovalent interactions under cellular conditions, as well as antimalarial and anti-inflammatory actions of natural and synthetic derivatives. Synthesis and spectroscopic properties of not only chalcones but their conformationally restricted analogs are also discussed. Furthermore, synthetic methods and biological activities of C5-curcuminoids, a class of compounds with the related 3-aryl-2-propen-1-one moiety, are summarized. The respective chapters discuss the known structure-to-spectroscopic characteristic and structure-to-biological activity relationships as well.

HB 9781536187090 £203.99 November 2020 Nova Science Publishers 327 pages



Properties and Uses of Butanol

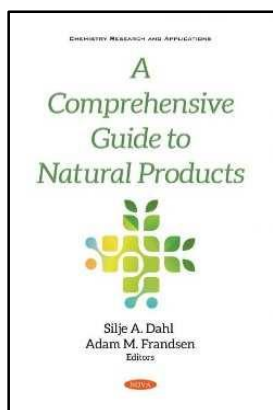
Edited by Arnaud M. Artois

Properties and Uses of Butanol reviews the different types of butanol along with its characteristics, methods of production and future trends observed in its applications as an alternative energy resource.

The main aspects involved in the production of biobutanol are described, including raw materials, the transformation of biomass and the separation of the acetone-butanol-ethanol mixture. The most important areas of opportunity are determined, focusing on the enhancements required by the production process to increase reaction yields in the hydrolysis and fermentation steps.

The closing study discusses the oxidation of butanol on Pt single crystal, the possible mechanisms of the butanol oxidation reaction, and the working principles of fuel cells.

PB 9781536184488 £84.99 October 2020 Nova Science Publishers 149 pages



A Comprehensive Guide to Natural Products

Edited by Silje A. Dahl

In this compilation, the role of liquid chromatography, mass spectrometry and chemometrics for the analysis and characterization of plant natural products is addressed.

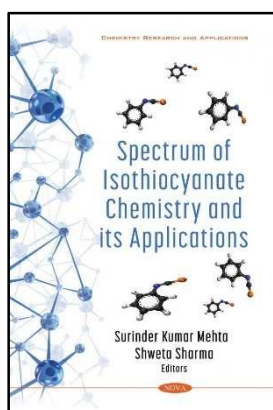
The authors provide a comprehensive review of the pharmacological activity of cetrarioid lichens and their major secondary metabolites as antioxidants to prevent and treat oxidative stress-related diseases.

Following this, the way in which the detection of various secondary metabolites and bioactive compounds in some plants can reduce sickle cells in vitro is studied.

In addition, the efficiency of green and conventional solvent systems concerning the three classes of phytochemicals (phenols, alkaloids, and flavonoids) is described.

Lastly, a brief history of antibiotics and the spread of resistance is provided, and future strategies to combat drug-resistant microbes are discussed.

PB 9781536184181 £84.99 September 2020 Nova Science Publishers 206 pages

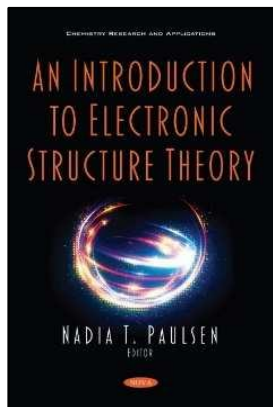


Spectrum of Isothiocyanate Chemistry and its Applications

Edited by Surinder Kumar Mehta

This book is a compilation of invaluable contributions in the field of isothiocyanate chemistry. It clearly presents multidisciplinary chapters which focus on the various applications of isothiocyanates in the fields of health, fitness, and environmental sciences. Isothiocyanates are a class of agents that can simultaneously deliver diagnostic and therapeutic functions, enabling the detection and treatment of diseases in a single procedure, and play an efficient role in fighting against the global problem of pollution.

HB 9781536164787 £203.99 January 2021 Nova Science Publishers 374 pages



An Introduction to Electronic Structure Theory

Edited by Nadia T. Paulsen

In *An Introduction to Electronic Structure Theory*, *Quantum Information Theory* is applied to donor-acceptor systems. Reaction stages and charge-transfer phenomena are described, continuities of probability and phase distributions are explored, and resultant information descriptors combining classical and nonclassical contributions are summarized.

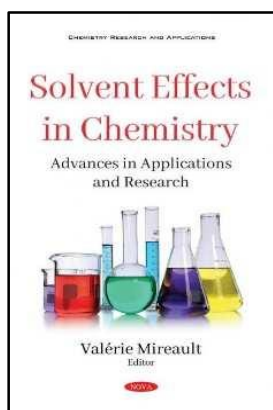
The authors describe the most efficient method for studying the electronic structure of solids, the magnetic dilution method, or the study of the magnetic susceptibility of diluted solid solutions of paramagnetic oxides in diamagnetic isomorphous matrices.

A review of the mathematical modeling and investigation of the electronic structure of some nanomaterials, composite materials, and graphene is presented using the Parameterized Model number 3 (PM3) semi-empirical method.

A basic introduction of electronic structure theory with commonly used notation is provided, as well as its applications for studying the physical properties of materials.

Lastly, based on a concept of “different prescription for different correlation”, a multireference Brillouin-Wigner perturbation scheme with improved virtual orbitals is presented as an accurate and affordable computational protocol for treating electronic states plagued by quasidegeneracy.

PB 9781536184112 £84.99 September 2020 Nova Science Publishers 179 pages



Solvent Effects in Chemistry

Advances in Applications and Research

Edited by Valérie Mireault

In *Solvent Effects in Chemistry: Advances in Applications and Research*, a critical review of solvent influence on the performance of metal catalysts in the hydrogenation of carbonyl compounds, specifically unsaturated aldehydes, ketones and ketoesters, is provided.

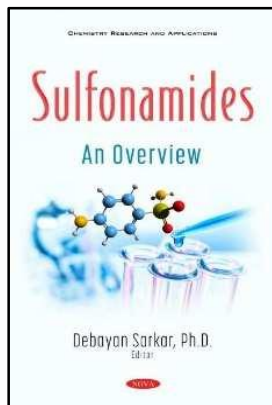
Additionally, the effects of solvent on the kinetics and mechanism of different reactions, stability, and sensitivity of the nanostructures are investigated.

The uses of a large of variety of solvents varying from non-polar low basic solvents to polar strong basic solvents are discussed, showing that the properties of different solvents strongly influence the product composition of both studied reactions.

The effects of solvent on the isomerization of monoterpenes epoxides as α - and β -pinene epoxide, limonene epoxide, verbenol epoxide, and nopol epoxide are explained from molecular and mechanistic points of view.

The concluding study explores how heterolytic bond dissociation forms ionic species, while the corresponding homolytic bond dissociation results in the formation of neutral radical species.

HB 9781536182262 £203.99 October 2020 Nova Science Publishers 285 pages



Sulfonamides

An Overview

Edited by Debayan Sarkar

This book presents comprehensive accounts of the chemistry revolving around the sulphonamides. Sulphonamides are widely present in various drugs as a functional group and are a manmade synthetic drug. Hence, their extended research is a prerequisite for every practitioner of organic chemistry.

Chapter 1 introduces the synthesis, reactivity, acidity, and pharmaceutical properties of the sulphonamides. It highlights the synthesis of biologically active sulphonamides, the study of their biological activity by QSAR method, and their medical applications.

Chapter 2 deals with the classification of sulphonamides (i.e. acyclic and cyclic) and their structural activity relationship. It also describes the application of sulphonamides in pharmaceuticals as antimicrobial, anti-diabetic, anti-viral, anti-cancer, anti-inflammatory and anti-malarial agents.

Chapter 3 reviews the synthetic attempts towards sulphonamide synthesis by employing the fixation of sulphur-dioxides. These approaches have been categorized into three parts: a) transition metal-catalyzed, b) employing Lewis acid, c) photocatalytic.

Chapter 4 discusses the use of sulphonamides as potent organocatalysts, briefly describing how the mono- and C₂-symmetric bis-sulfonamides act as efficient bifunctional and multifunctional organocatalysts in the enantioselective Michael addition of carbonyl compounds to α,β -unsaturated compounds.

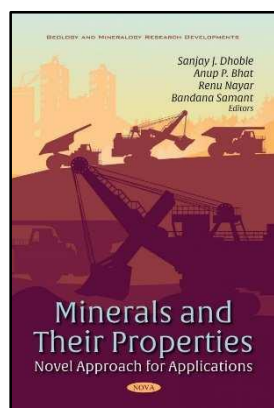
Chapter 5 details the oxidative sulphonamidation of alkenes and dienes, which also direct the routes to the synthesis of numerous heterocycles and linear compounds. Special emphasis is given to the comparison of reactivity of triflamides, arenesulfonamides, and the deprotection of sulfonamides.

Chapter 6 describes the therapeutic properties of sulphonamides, which are significantly increased by the presence of the metal ions and ligands. This complex generation provides the opportunity to exploit the unique properties of metal centers, such as multiple oxidation states, redox properties, a wide variety of coordination numbers, symmetries and structural patterns, which offer highly adaptable platforms for drug design.

Chapter 7 provides an overview of the clinical applications of sulphonamides on the toxicity and pharmacokinetic aspects of various sulpha-drugs. The mechanism involved in the development of sulfonamide resistance is briefly discussed.

Thus, this book summarizes important attempts undertaken by chemists and biologists worldwide in the area of sulphonamides. Most importantly, the book also correlates the structural activity relationship and the related biological activity of the sulphonamides, attracting both novice and experienced chemists across the globe.

HB 9781536181579 £203.99 November 2020 Nova Science Publishers 340 pages



Minerals and Their Properties Novel Approach for Applications Edited by Sanjay J. Dhoble

Geology deals with the Earth's dynamics, rocks, minerals, past life, and landforms. To understand geological processes and their applications in society, a multidisciplinary approach is needed. This book discusses how minerals and their inherent properties can be used for the benefit of society.

Minerals are the building blocks of rocks and soils, and more than 3,000 varieties of minerals have been identified. Mineral science, traditionally known as mineralogy, is the study of naturally occurring solid substances in the universe. These substances were formed by complex earth system processes and provide a key to understanding the composition and origins of the earth. These minerals are classified based on their physical and chemical characteristics, occurrence, and economic value.

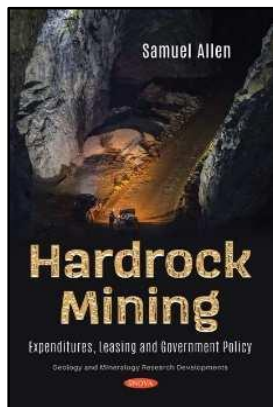
Globally, India is considered a potential resource for various mineral deposits. According to the Ministry of Mines, the Indian subcontinent produces as many as 95 minerals. These minerals are used in numerous industries like engineering, infrastructure, electronics, armory, and food, etc. The physical properties of a mineral are characterized by the combination of crystal structure and chemical composition. To date, the chemical and physical properties of some of the new minerals are not known. Similarly, it is essential to develop artificial minerals to replace naturally occurring minerals.

A lot of work has gone into developing low-cost materials in large quantities, with the same chemical properties as the natural materials, so that they can be used in a cost-effective way for the benefit of society and industry. Nowadays, minerals are also increasingly used in biomedical sciences and for assessing and managing water quality, especially in the Indian context.

The feldspar group of minerals are the most abundant minerals in the Earth's crust and constitute up to 51 % of the continental crust. The weathering of minerals, especially feldspar, plays important role in soil formation. Soil provides indispensable resources for food production and shelter. The inherent fertility of soil depends on the presence of nutrient elements, hosting or holding minerals in rocks and sediments and their bioavailability by controlled weathering processes. Agricultural productivity is correlated with geologically recent additions of fresh rock debris by processes of volcanism, glaciations, denudation and deposition and chemical weathering of feldspars. Hence, the Feldspar group of minerals are important for increasing soil fertility and productivity.

Mineral-based phosphors encourage the visual recurrence transformation to develop full-shading white emanating light-transmitting diodes (LEDs). Presently, most of the focus is on the advancement of novel mineral-based LED phosphors for strong state lighting. We have proposed a few new agent groups of mineral-based LED phosphors and strong state lighting innovations for vitality and eco-accommodating lighting frameworks. Long lasting mineral-based phosphors help in future extensions. Some of the economically important minerals of India, their properties, occurrences and government mineral policies are also discussed.

HB 9781536188899 £203.99 December 2020 Nova Science Publishers 316 pages

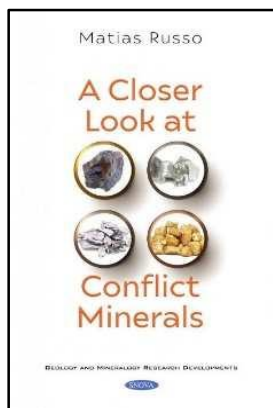


Hardrock Mining Expenditures, Leasing and Government Policy

Edited by Samuel Allen

The General Mining Act of 1872 allowed individuals to obtain exclusive rights to valuable hardrock mineral deposits on land belonging to the United States. Miners explored, mined, and processed valuable minerals, but many did not reclaim the land after their operations ended. Unsecured mine tunnels, toxic waste piles, and other hazards—known as mine features—are found at abandoned hardrock mines across federal and nonfederal lands. The Forest Service, BLM, National Park Service, EPA, and OSMRE—as well as state agencies—administer programs that identify and address hazardous features at abandoned hardrock mines. This book looks at hardrock mining issues.

HB 9781536189346 £203.99 December 2020 Nova Science Publishers 386 pages



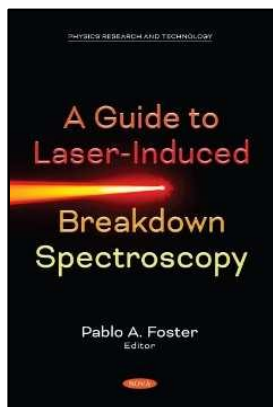
A Closer Look at Conflict Minerals

Edited by Matias Russo

The exploitation of the mining and trade of “conflict minerals”—in particular, tin, tungsten, tantalum, and gold from the eastern region of the Democratic Republic of the Congo (DRC)—has contributed to the displacement of people and severe human rights abuses. The 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) addresses, among other things, trade in conflict minerals. This book looks at the progress made since the Dodd-Frank Act went into effect.

HB 9781536189476 £141.99 December 2020 Nova Science Publishers 205 pages

Physics Research & Technology



A Guide to Laser-Induced Breakdown Spectroscopy

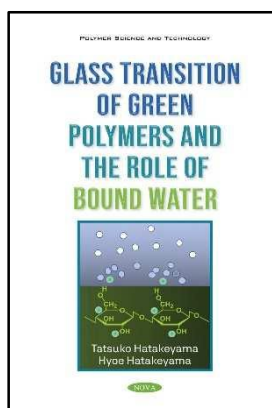
Edited by Pablo A. Foster

This compilation focuses on laser-induced breakdown spectroscopy, a technique that provides a versatile qualitative and quantitative analysis of any sample.

The authors present perspectives on the current trends in the use of laser-induced breakdown spectroscopy for insulation condition monitoring.

A guide to laser-induced breakdown spectroscopy as a classification tool is provided, along with combinations of well-established classification algorithms with laser-induced breakdown spectroscopy and their implementation schemes.

PB 9781536189322 £84.99 December 2020 Nova Science Publishers 158 pages



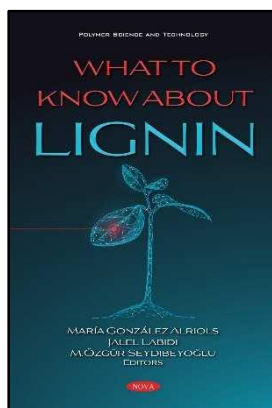
Glass Transition of Green Polymers

Tatsuko Hatakeyama

In nature, green polymers (natural polymers) in plants and animals always coexist with water. The characteristic features of polymers organized in nature are difficult to understand without water. Specific features of green polymers are characterised via interaction with water molecules which strongly interact with the hydrophilic group of polymers. Molecular motion of the main chain of polysaccharides, whether extracted from wood, fungi, seaweed, or bacteria, is considerably enhanced in the presence of water. Not only in crystalline polysaccharides but also amorphous lignin, the effect of water on molecular motion is clearly observed by various experimental techniques. When the molecular motion of green polymers is investigated in the presence of water, molecular rearrangement occurs by the introduction of water into the system, and the higher-order structure is rearranged during molecular movement by heating conditions. Phase transition behaviour of water molecules is also affected in the presence of hydrophilic polymers, such as polysaccharides. Molecular enhancement of water molecules and hydrophilic polymers cooperate with each other and phase transition behaviour of the above system also corresponds to the above motion. Even the first-order phase transition of water is affected in the presence of polysaccharides. When glass transition behaviour of the natural polymer-water system is investigated, it is important to take into consideration the fact that the structural change of both components has necessarily taken place.

In this book, the molecular motion of green polymers, traditionally called natural polymers and obtained mainly from plants and bacteria, are described in the presence of water. The major sources of content presented here are derived from our research results gathered over a period of many years of work in this field.

HB 9781536192148 £203.99 March 2021 Nova Science Publishers 335 pages



What to Know about Lignin

Edited by María González Alriols

This book presents recent developments about lignin documented with world renown researchers. The book is divided into 3 parts: a. Lignin Extraction/Characterization b. Lignin Modification c. Lignin Applications Lignin chemistry is still a mysterious area with various lignin types from various plants in the world providing us new opportunities to discover new materials. With the world extensive knowledge on surface chemistry, there are various methods to modify lignin structure. There are also many applications in polymeric resins, polymer composites, fertilizers and enhanced oil recovery. The book covers all the important developments about this highly important material group "Lignin".

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A Guide to Laser-Induced Breakdown Spectroscopy	PB	9781536189322	£ 84.99		
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