

Handbook Of Porphyrin Science Volumes 31 35 With Applications To Chemistry Physics Materials Science Engineering Biology And Medicine

Announcing the sequel to the first ten volumes of The Porphyrin Handbook, which provided an authoritative treatise on the porphyrin system and dealt in fine detail with the synthesis, chemistry, spectroscopy, and applications of porphyrins. The ten latest volumes 11-20 address those major disciplinary areas not covered in the first, including biology and medical implications of porphyrin systems, the biosynthesis of porphyrins, chlorophylls and vitamin B12. Other areas include the multitude of genetically transmitted and drug induced diseases associated with errors in heme metabolism, the transformations of hemes into bile pigments, the organic syntheses of bilins, very recent work on phytochrome, and the pathways of degradation of chlorophyll in senescent plants. In addition, volumes 11-20 address every aspect of synthesis, chemistry, structure and spectroscopy of phthalocyanines which will appeal to scientists in fields ranging from mathematics through physics, chemistry and biochemistry, to biology and medicine. . By the same Editors as the successful first Porphyrin Handbook, published in 2000. . Consists of 61 chapters written by internationally recognized experts. . Clear, concise, and uniform presentation with many hundreds of figures, tables and structural formulae. Including volume indices and cumulative index.

Volume 45 in the highly successful series Handbook of Porphyrin Science presents three very informative chapters of significant topical interest to researchers in the broad field of porphyrin science. The first chapter (Chapter 215) systematically describes in great detail the many synthetic methods utilized for the preparation of both metal-free and metallo-phthalocyanines. In the second chapter (Chapter 216), new developments in the synthesis, structure, and circular dichroism of chiral porphyrin systems are discussed in depth. The third and final chapter in this volume (Chapter 217) describes up-to-date advances in the use of computational methodology for the design and synthesis of functionally useful tetrapyrroles such as phthalocyanines, porphyrins and 9. The volume concludes with a useful comprehensive index. The overall emphasis of Volume 45 of the Handbook of Porphyrin Science series, centers on synthetic methodology and processes, with a diversion in Chapter 217 to include predictive computational methodology, and in Chapter 216 to address the importance of chirality in tetrapyrrole systems. All three chapters will be of interest to researchers in the field and should provide powerful tools for anyone involved in the chemistry of phthalocyanines, porphyrins and related systems.

The Porphyrin Handbook, Volume 14: Medical Aspects of Porphyrins provides information pertinent to every aspect of the chemistry, synthesis, spectroscopy, and structure of phthalocyanines. This book examines the biology and medical implications of porphyrin systems. Organized into 12 chapters, this volume begins with an overview of the underlying diagnostic features, mechanisms, and available treatments of erythropoietic disorders due to defective heme biosynthesis. This text then examines the physiopathology of acute intermittent porphyria, which is transmitted as autosomal dominant disorders with incomplete penetrance. Other chapters consider the main characteristics of congenital erythropoietic porphyria, which includes an increased

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This is the sixth set of Handbook of Porphyrin Science. This 5-volume set provides a comprehensive review of the most up-to-date research on porphyrin, heme and chlorophyll biochemistry, as well as applications to biomedicine and bio-inspired energy. In-depth coverage of topics along with perspectives on outstanding questions and future research directions by the authors make these volumes an essential resource for both beginning and advanced investigators in the field. It is also suitable for non-experts in porphyrin, who wish to have an overview of the fundamental discoveries and breakthroughs in the porphyrin arena related to medicine and bio-inspired energy. Bringing together the biochemistry of porphyrin-binding proteins and their clinical relevance and applications to medicine and renewable energy, this set provides readers with an integrated coverage of porphyrin biochemistry. At the same time, it challenges readers with new questions and perspectives of research regarding the role of porphyrin biochemistry in the future of medicine and

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Chemical modelling covers a wide range of disciplines and this book is the first stop for any materials scientist, biochemist, chemist or molecular physicist wishing to acquaint themselves with major developments in the applications and theory of chemical modelling. Containing both comprehensive and critical reviews, it is a convenient reference to the current literature. Coverage includes, but is not limited to, boron clusters, molecular modeling of inclusion complexes, modelling of circular dichroism for DNA and proteins, and the interface effect of nanocomposites as electrode materials for Li/Na ion batteries.

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Scientists in such fields as mathematics, physics, chemistry, biochemistry, biology, and medicine are currently involved in investigations of porphyrins and their numerous analogues and derivatives. Porphyrins are being used as platforms for the study of theoretical principles, as catalysts, as drugs, as electronic devices, and as spectroscopic probes in biology and medicine. The need for an up-to-date and authoritative treatise on the porphyrin system has met with universal acclaim amongst scientists and investigators.

This is the seventh set of Handbook of Porphyrin Science. Porphyrins, phthalocyanines and their numerous analogue and derivatives are materials of tremendous importance in chemistry, materials science, physics, biology and medicine. They are the red color in blood (heme) and the green in leaves (chlorophyll); they are also excellent ligands that can coordinate with almost every metal in the Periodic Table. Grounded in natural systems, porphyrins are incredibly versatile and can be modified in many ways; each new modification yields derivatives, demonstrating new chemistry, physics and biology, with a vast array of medicinal and technical applications. As porphyrins are currently employed as platforms for study of theoretical principles and applications in a wide variety of fields, the Handbook of Porphyrin Science represents a timely ongoing series dealing in detail with the synthesis, chemistry, physicochemical and medical properties and applications of polypyrrole macrocycles. Professors Karl Kadish, Kevin Smith and Roger Guilard are internationally recognized experts in the research field of porphyrins, each having his own separate area of expertise in the field. Between them, they have published over 1500 peer-reviewed papers and edited more than three dozen books on diverse topics of porphyrins and phthalocyanines. In assembling the new volumes of this unique handbook, they have selected and attracted the very best scientists in each sub-discipline as contributing authors. This handbook will prove to be a modern authoritative treatise on the subject as it is a collection of up-to-date works by world-renowned experts in the field. Complete with hundreds of figures, tables and structural formulas, and thousands of literature citations, all researchers and graduate students in this field will find the Handbook of Porphyrin Science an essential, major reference source for many years to come.

This is the fifth set of Handbook of Porphyrin Science. Porphyrins, phthalocyanines and their numerous analogues and derivatives are materials of tremendous importance in chemistry, materials science, physics, biology and medicine. They are the red color in blood (heme) and the green in leaves (chlorophyll); they are also excellent ligands that can coordinate with almost every metal in the Periodic Table. Grounded in natural systems, porphyrins are incredibly versatile and can be modified in many ways; each new modification yields derivatives, demonstrating new chemistry, physics and biology,

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The Porphyrin Handbook, Volume 17: Phthalocyanines: Properties and Materials provides information pertinent to every aspect of the chemistry, synthesis, spectroscopy, and structure of phthalocyanines. This book examines the biology and medical implications of porphyrin systems. Organized into five chapters, this volume begins with an overview of the effects of pressure, temperature, electromagnetic radiation, and particle impact on phthalocyanines. This text then examines. Other chapters consider the research on phthalocyanine thin films, with emphasis on studies that are concerned primarily with film structures. This book discusses as well the nature of the phthalocyanine aggregation process, how an aggregate is defined, and the issues of its bonding and structure. The final chapter deals with the advances in the design of composites of phthalocyanines or porphyrins and inorganic hosts and some of the most significant findings in the catalysis with these systems. This book is a valuable resource for research scientists, engineers, and clinicians.

