Synthetic Multidentate Macrocyclic Compounds

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Synthetic Multidentate Macrocyclic Compounds

T. E. Edmonds

Synthetic Multidentate Macrocyclic Compounds:

Synthetic Multidentate Macrocyclic Compounds Reed Izatt, 2012-12-02 Synthetic Multidentate Macrocyclic Compounds attempts to bring together selected chapters in which the authors discuss in depth investigations in important areas of macrocycle research The chapters deal mainly with macrocyclic compounds saturated polyethers and their derivatives and macrobicyclic compounds cryptates The book contains six chapters and opens with a first hand account of the initial synthesis of the cyclic polyethers. This is followed by separate chapters on the synthesis of cyclic polyethers polyether amines and polyether sulfides the synthesis of multidentate compounds and the structure of synthetic macrocyclic compounds and their cation complexes Subsequent chapters deal with the rates of reactions and the mechanism by which synthetic macrocyclic ligands complex substrates in solution and commercial applications of the synthetic macrocyclic ligands This book is primarily aimed at researchers and students in organic physical analytical and inorganic chemistry and in chemical engineering However it will also be of interest to many in the areas of biology biochemistry and physiology Extensive literature references are found in each chapter Template Synthesis of Macrocyclic Compounds N. V. Gerbeleu, V. B. Arion, John P. Burgess, 2008-07-11 The synthesis of macrocycles is an art in itself Template controlled synthesis provides elegant access to fascinating macrocyclic structures Polyazamacrocycles crown ethers cryptands rotaxanes knots the range of macrocyclic compounds is as broad as their potential application as molecular switches in ion exchange electron transfer or catalysis This book provides authoritative information on all aspects of template controlled macrocyclizations It covers in depth the current state of research on template processes novel synthetic techniques and mechanistic approaches The critical discussion of the diverse synthetic routes includes the detailed characterization of the broad variety of macrocyclic products References to applications of macrocyclic compounds and over 1 500 citations make this handbook an indispensable tool for chemists in academia and industry Researchers in organic and supramolecular chemistry biotechnology and inorganic chemistry will find inspiration for the design synthesis and myriad uses of new synthetic macrocycles *Synthetic* Coordination and Organometallic Chemistry Alexandr D. Garnovskii, Boris I. Kharissov, 2003-04-25 This reference describes standard and nonstandard coordination modes of ligands in complexes the intricacies of polyhedron programmed and regioselective synthesis and the controlled creation of coordination compounds such as molecular and hn p complexes chelates and homo and hetero nuclear compounds It offers a clear and concise review of modern synthetic techniques of metal complexes as well as lesser known gas and solid phase synthesis electrosynthesis and microwave and ultrasonic treatment of the reaction system The authors pay special attention to o hydroxyazomethines and their S Se containing analogues b diketones and quinines among others and examine the immediate interaction of ligands and metal salts or carbonvls Analytical Chemistry of Macrocyclic and Supramolecular Compounds Shripad Moreshwar Khopkar, 2005 This volume provides a comprehensive state of the art account exclusively devoted to the analytical chemistry of Macrocyclic

crown ethers Macrobicyclic cryptands and the Supramolecular compounds calixarene and calyx n resorcinarene and rotaxanes These compounds having a great deal of similarity in their chemical characteristics have direct application in biosciences analytical chemistry solvent extraction chromatography spectroscopy and ion selective electrodes BOOK JACKET

Coordination Chemistry of Macrocyclic Compounds Gordon Melson, 2012-12-06 Chemists have been aware of the existence of coordination compounds con taining organic macrocyclic ligands since the first part of this century however only during the past few years have they expanded research into the chemistry of these compounds The expansion was initiated in the early 1960s by the synthesis and characterization of compounds containing some new macrocyclic ligands The synthesis of compounds which may serve as model systems for some natural products containing large rings as ligands provided the main goal for the early expansion of research effort indeed a recurrent theme behind much of the reported chemistry has been the analogy between synthetic macrocyclic compounds and many natural product systems More recently the emphases of reported research have ranged over the whole spectrum of chemistry and the number of publications that discuss macrocyclic chemistry has increased at a dramatic rate The completed research has been reported in a variety of journals throughout the world but there has been no previous attempt to bring the major developments together under one cover This book therefore attempts to satisfy the need for a single source in which there is both a collection and a correlation of information concerning the coordination chemistry of macrocyclic compounds The chapters in this book discuss various aspects of macrocyclic chemistry and while these chapters as a whole constitute an in depth survey of the state of the art of the field each chapter is written as a complete unit General and Synthetic Methods G Pattenden, 2007-10-31 Specialist Periodical Reports provide systematic and detailed review coverage of progress in the major areas of chemical research Written by experts in their specialist fields the series creates a unique service for the active research chemist supplying regular critical in depth accounts of progress in particular areas of chemistry For over 80 years the Royal Society of Chemistry and its predecessor the Chemical Society have been publishing reports charting developments in chemistry which originally took the form of Annual Reports However by 1967 the whole spectrum of chemistry could no longer be contained within one volume and the series Specialist Periodical Reports was born The Annual Reports themselves still existed but were divided into two and subsequently three volumes covering Inorganic Organic and Physical Chemistry For more general coverage of the highlights in chemistry they remain a must Since that time the SPR series has altered according to the fluctuating degree of activity in various fields of chemistry Some titles have remained unchanged while others have altered their emphasis along with their titles some have been combined under a new name whereas others have had to be discontinued The current list of Specialist Periodical Reports can be seen on the inside flap of this volume **Crown Ethers** and Cryptands George W Gokel, 2016-11-08 Supramolecular chemistry concerns the structure and function of molecular assemblies formed through weak interactions These complexes have found diverse applications in materials chemistry

nanoscience catalysis food sciences and medicine and this has led to a rapid expansion in supramolecular chemistry research With contributions from high profile international scientists working within the field each book in the series covers a key concept for graduate level students and above interested in supramolecular chemistry and its diverse applications. The books are ideal for reference and as state of the art guides and they aim to enable further developments of new applications through an understanding of the fundamentals and a comprehensive overview of the latest research Chemistry Macrocycles F. Vögtle, E. Weber, 2012-12-06 The scientific and practical interest in coronands crown ethers cryptands podands as complexing agents for cations as well as for anions and neutral low molecular species is undeniable 1 2 The chemistry of crown compounds is steadily increasing About 250 original papers dealing with crown chemistry appeared only in 1980 New molecules with crown ether properties are constantly synthesized and new applications discov red Owing to lack of space only a small number of the original publications is men tioned here Thus in the literature compilation only some but relevant works are selected for each chapter Whenever possible reference is made to reviews or review like articles alone by means of which origin al works can be consulted The reviews given under ref 1 are considered to be the most relevant The formulae presented in the figures should be understood as representative structures outlining a specific field 2 Classification of Oligo Multidentate Neutral Ligands and of their Complexes Today a distinction is made between the classical ring oligoethers crown ethers and monocyclic coronands oligocyclic spherical cryptands and the acyclic podands with respect to topological aspects 3 This classification and the topology are illustrated in Fig 1 each figure representing the minimum number of donor atoms and chain segments characteristic of each class of compounds Multidentate mono cyclic ligands with any type of donor atoms are called coronands crown compounds while the term crown ether should be reserved for cyclic oligoethers exclusively containing oxygen as donor atom Macrocyclic Chemistry K. Gloe, 2005-12-05 Macrocyclic Chemistry Current Trends and Future Perspectives illustrates essential concepts in this expanding research field covering both basic and applied studies Written by well known experts from around the world the topics of the chapters range from new macrocyclic architectures with different functions and self assembly processes through to the modeling and dynamics of such systems The content also reflects on application possibilities in analytical chemistry separation processes material preparation and medicine Thus this book serves as a creative source of research strategies and methodic tools Providing an excellent overview of the field this book will be a valuable resource for researchers in industry and academic institutions as well as for teachers of science and graduate students This book is devoted to the long standing tradition of the International Symposia on Macrocyclic Chemistry ISMC and published to coincide with the 30th meeting Dresden Germany Binding by Macrocycles Inoue, 2018-10-03 This reference details the theory and application of cation complexation including the design and synthesis of various cyclic systems these materials use as transport systems in complexation and selectivity studies by macrocyclic systems and methodologies for understanding these phenomena In a **Solvents and Solvent**

Effects in Organic Chemistry Christian Reichardt, 2006-03-06 In most cases every chemist must deal with solvent effects whether voluntarily or otherwise Since its publication this has been the standard reference on all topics related to solvents and solvent effects in organic chemistry Christian Reichardt provides reliable information on the subject allowing chemists to understand and effectively use these phenomena 3rd updated and enlarged edition of a classic 35% more contents excellent proven concept includes current developments such as ionic liquids indispensable in research and industry From the reviews of the second edition This is an immensely useful book and the source that I would turn to first when seeking virtually any information about solvent effects Organometallics Chemical Sensors T. E. Edmonds, 2013-03-14 At the beginning of this book and in the absence of guidance from IUPAC it is appropriate to clarify the term chemical sensor A chemical sensor may be defined as a simple to use robust device that is capable of reliable quantitative or qualitative recognition of atomic molecular or ionic species It is hard to imagine a field of applied chemistry in which a significant impact could not be made by such a device Undoubtedly it is this potential that has fuelled the contemporary preoccupation with chemical sensors An unfortunate side effect of this otherwise welcome interest is the use of the term chemical sensor to add the chemical equivalent of a High Tech gloss to a rather ordinary device publication conference or research group This loose usage of terminology is responsible in part for the ambiguity that surrounds many chemists concepts of the form and function of chemical sensors Further ambiguity arises from the extravagant claims that have been made for some sensors and the impression that has been given of much verging on a breakthrough research. The research chemist engaged in sensor development should be mindful of the fact that the ultimate target for these devices is the real world and that a successful laboratory device operating under well defined conditions and careful calibration does not constitute a chemical sensor Research into chemical sensors is not a recent phenomenon it has been under way for over 80 years Kinetic Studies of Synthetic Multidentate Macrocyclic Compounds Gerard W. Liesegang, Edward M. Eyring, UTAH UNIV SALT LAKE CITY DEPT OF CHEMISTRY., 1976 The recent literature on the kinetic properties of a variety of synthetic multidentate macrocyclic compounds has been reviewed and discussed At the beginning of this chapter a brief discussion of kinetic and mechanistic studies of antibiotics has been reviewed Then the synthetic macrocyclic compounds are treated within the framework of their different classes i e crown ethers cryptates and macrocyclic tetramines In addition to a review of the kinetic research attempts were made to clarify certain aspects of the literature and to discuss similarities and differences between the various classes Finally the last section discusses possible kinetic studies of more novel Host molecules designed and synthesized by Cram **Ullmann's Fine Chemicals** Wiley-VCH,2014-01-07 A compilation of 76 articles from the ULLMANN s Encyclopedia of Industrial Chemistry this three volume handbook contains a wealth of information on the production and industrial use of more than 2 000 of the most important fine chemicals from Alcohols to Urea Derivatives Chemical and physical characteristics production processes and production figures main uses toxicology and safety information are all

found here in one single resource <u>Ion Exchange and Solvent Extraction</u> Jacob A. Marinsky, Yitzhak Marcus, 1997-02-21 Volume 13 of this important series continues in the tradition of its widely received predecessors presenting current advances and results in solvent extraction Contains nearly 800 helpful drawings tables equations and bibliographic citations

Inclusion Aspects of Membrane Chemistry T. Osa, J.L. Atwood, 2012-12-06 There is no doubt that the field of artificial membrane transport using synthetic ionophores has advanced remarkably in the past 15 years due primarily to the synthesis of new ionophores Even though the theoretical framework substantially predated this activity the merging of theory with transport experiment has often been sketchy. The purpose of this outline has been to examine key examples to illustrate the underlying principles and to suggest how experimental variables dominate the results obtained. To a very good approximation the assumption of a diffusion regime is often justified is easily confirmed experimentally and provides a clear framework for exploitation of the inherent selectivity of a given ionophore. Thus for synthetic chemists who wish a quick and nasty experiment to examine the question of selectivity the recipe is clear a mixture containing all ions of interest in a standard experiment for each ligand of interest using a moderately stirred 100 200 rpm cell and analysis of the mixture produced on the OUT side of the cell at a fixed small extent of transport Together with duplicates and controls this modest set of experiments will place the results on an unambiguous footing from which clear conclusions about each ionophore s characteristics are readily obtained For those with more detailed interests in the transport process the demands are correspondingly higher.

United States-Japan Seminar on Host-Guest Chemistry George W. Gokel, Kenji Koga, 2012-12-06**

Annual Reports on NMR Spectroscopy, 1993-10-26 Annual Reports on NMR Spectroscopy Techniques and Applications of Fast Reactions in Solution W.J. Gettins, E. Wyn-Jones, 2012-12-06 As a result of the pioneering efforts of Eigen de Maeyer Norrish and Porter the kinetics of fast reactions in solution can now be studied using chemical relaxation methods as well as many other fast reactions techniques These methods have been applied successfully in many branches of the natural sciences The simultaneous growth in the number of investiga tors and the diversity of their research interests has inevitably led to communication problems The purpose of the NATO Advanced Study Institute entitled New Applications of Chemical Relaxation Spectrometry and Other Fast Reaction Methods in Solution was to create a forum so that research scientists working in different areas concerned with fast reactions could interact This meeting was held at the Llandinam Building University College of Wales Aberystwyth from September 10th 20th 1978 In addition to lectures on techniques and theory two days of the NATO Advanced Study Institute were spent discussing the current state of the art in this field This two day meeting was also run under the auspices of the Chemical Society Fast Reactions in Solution Group The papers in this volume are the result of the contributions given in the Aberystwyth meeting We have attempted to make this volume useful for the non expert and a comprehensive introduction to theory as well as the instrumentation used in the studies are discussed in detail Handbook of Microbial Iron Chelates (1991) Gunther Winkelmann, 2017-11-22 Handbook of Microbial

Iron Chelates emphasizes the various microbial compounds and synthetic analogues functioning as siderophores in microbes and as potential drugs in human iron metabolism. There are chapters describing the isolation chemical characterization synthesis and physicochemical properties of microbial iron chelates. Other chapters deal with the physiology and genetics of transport and receptors involved in iron uptake. Chemists biologists biochemists pharmacologists and medical doctors interested in the general aspects of iron metabolism siderophores receptors and iron complex formation should consider this book a rich information source.

Ignite the flame of optimism with is motivational masterpiece, **Synthetic Multidentate Macrocyclic Compounds**. In a downloadable PDF format (*), this ebook is a beacon of encouragement. Download now and let the words propel you towards a brighter, more motivated tomorrow.

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