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BOOK REVIEWS

A Practical Guide to Supramolecular Chemistry. Edited by Peter J. Cragg (University of Brighton, UK). John Wiley and Sons, Ltd.: Chichester. 2005. x + 204 pp. $65.00. ISBN 0-470-86654-3.

The goal of this book is to help chemists with little or no experience in supramolecular chemistry "prepare archetypal compounds used in supramolecular chemistry—crown ethers, podands, resorcinarenes, calixarenes and the like—using straightforward experimental procedures." The compounds covered here are those that can be synthesized in an ordinary academic laboratory without the aid of specialized equipment, and the procedures chosen are the most reproducible. Techniques that are commonly used to analyze supramolecular phenomena are also described. A general introduction explaining what supramolecular chemistry is begins the book, and each ensuing chapter also provides introductory details about the historical and current importance of the compound at hand. A subject index and two appendices, "Integrated undergraduate projects" and "Reagents and solvents", complete the book.

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Macromolecules Containing Metal and Metal-Like Elements, Volume 6: Transition Metal-Containing Polymers. Edited by Alaa S. Abd-El-Aziz (The University of Winnipeg), Charles E. Carraher, Jr. (Florida Atlantic University), Charles U. Pittman, Jr. (Mississippi State University), and Martel Zelden (University of Richmond). John Wiley & Sons, Inc.: Hoboken, NJ. 2006. xiv + 220 pp. $150.00. ISBN 0-471-68445-7.

Volume 6 of this series of reviews on transition metal-containing polymers adds further breadth to the material covered in the previous five volumes and expands discussion to include the preparation, properties, and applications of organometallic polymers. As outlined in the first chapter of this volume, interest in polymers containing transition metals bonded to carbon reaches as far back as the early studies of ferrocene.

The six chapters of the volume are written by a complement of internationally recognized authors and are designed to make readers with all levels of expertise comfortable with this area of polymer chemistry. Chapter 1 is written by two of the editors and sets the stage for later discussions in Volumes 6 and 7 of this compilation. There is a brief outline of electronic structure and bonding of organometallic complexes that leads nicely into a discussion of the synthesis and properties of polymers containing these structural units.

The remaining five chapters are narratives of research topical to the laboratories of their respective authors. These more specialized discussions range from lithographic application of polyferrocenylsilanes to photodegradation and potential biodegradable application of polymers containing transition metals. The chemical reactivity of organometallic macromolecules is also outlined: for example, polymers containing reactive metallocycles in their backbone are shown to undergo a variety of reactions that can lead to a variety of functional materials including derivatives of poly-(*p*-phenylene) and thiophene-containing polymers. The synthesis and applications of zirconocene- and hafnocene-containing polymers are also discussed in some detail. This volume is ultimately brought to a close with a discussion of compositional and structural irregularities found within these intriguing polymers and how these variables influence their properties and offer practical application.

This book is well written and is readily accessible to readers of all levels of proficiency in the area of transition metal-containing polymers. It also serves as an excellent introduction for new researchers and a good reference for those more familiar with this field of study.

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Handbook of C−H Transformations: Applications in Organic Synthesis, Volumes 1−2. Edited by Gerald Dyker (Bochum University, Germany). Wiley-VCH Verlag GmbH & Co. KGaA: Weinheim. 2005. xxvi + xxvi + 662 pp. $385. ISBN 3-527-31074-6.

The goal of the editor in producing these volumes is to present "the whole range of modern methods for C−H transformation." There are more than 60 sections in this set, each written by a different author or set of authors, and each section is organized into 9 different chapters. In turn, these are categorized under the following parts: (I) General; (II) C−H Transformation at sp-hybridized Carbon Atoms; (III) C−H Transformation at sp^2-hybridized Carbon Atoms; and (IV) C−H Transformation at sp^3-hybridized Carbon Atoms. Most sections are fairly consistent in how the different methods of C−H transformation are categorized and presented, generally following this format: Introduction and Fundamental Examples; Mechanism; Scope and Limitations; Experimental; and References and Notes. A subject index completes the set.

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