

Thiophenes. By Salo Gronowitz and Anna-Britta Hörmfeldt (Lund University, Sweden). From the Series Best Synthetic Methods. Elsevier/Academic Press: Oxford. 2004. xxii + 964 pp. \$286.00. ISBN 0-12-303953-3.

In this handbook, authors Gronowitz and Hörmfeldt describe and critically evaluate the “best synthetic methods” for the formation and reaction of thiophenes and polymers containing thiophenes. Methods are presented according to the location in the periodic table of the substituent on the thiophene, e.g., Chapter 1 presents the “Syntheses of Thiophenes with Group I Substituents”, Chapter 2 with group II substituents, and so on. The book also contains references at the end of each chapter, which are current up to 2001, and a substances index.

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Analysis and Purification Methods in Combinatorial Chemistry. Edited by Bing Yan (Discover Partners International, San Francisco, CA). From the series: Chemical Analysis, Volume 163. Edited by J. D. Winefordner. John Wiley & Sons, Inc.: Hoboken. 2004. xiv + 466 pp. \$99.95. ISBN 0-471-26929-8.

The rapid development of combinatorial chemistry over the past decade has posed formidable challenges for the analysis and purification of large numbers of compounds. While a number of other books have appeared in the past six years that either focus on or dedicate a significant portion to the development and application of analytical methods for polymer-bound compounds or large compound libraries, this latest volume of the *Chemical Analysis* series of monographs highlights some of the most important issues in contemporary high-throughput analysis and purification in combinatorial chemistry. In particular, this volume brings together thoughtful highlights of recent analytical techniques and advances for the development, validation, quality control, purification, and physicochemical testing of combinatorial libraries that ensure that these libraries are, as the editor states, “synthesizable”, “purifiable”, and “drugable”.

Unsigned book reviews are by the Book Review Editor.

The book consists of 17 chapters divided into four major sections. Parts I–III extend and update similar reviews on libraries encompassing analysis and purification, whereas Part IV explores some of the issues arising from the synthesis, analysis, and physical long-term storage of large compound libraries arising in the pharmaceutical industry. Part I covers various analytical methods (NMR, HR-MAS NMR, FTIR, MS) for monitoring reactions on solid supports and optimizing reactions for library synthesis using chemometric multivariate measurement and data analysis tools, and Part II is focused on high-throughput analytical methods to analyze the quality of compound libraries, such as high-throughput and parallel NMR spectroscopic methods, micellar electrokinetic chromatography, and Affymax’s single-bead analysis methods for quality control of libraries. Part III is a review of high-throughput and parallel chromatographic methods for library analysis and purification, and Part IV covers the application of analytical methods, such as LC/MS and quartz microbalance, to post-synthesis and post-purification stages, such as the stability profiles of compound library storage and the issue of solubility in high-throughput screening and combinatorial library design.

One criticism is that some of the chapters lacked the most up-to-date references and were highly focused, appealing only to a specialized audience. These shorter chapters, however, were balanced by a number of excellent, more comprehensive reviews, some of which addressed topics not previously covered in the literature. Most of the chapters provided current, salient references.

As a whole, this is a timely and valuable volume that would be an excellent addition to university libraries and the collections of individuals outside of the presumed audience of analytical chemists for which it is written. For example, students and researchers working in the area of medicinal chemistry, combinatorial chemistry, high-throughput screening, or solid-phase organic synthesis may find it an indispensable reference.

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