Book Reviews

Organofluorine Chemistry. By Kenji Uneyama. Blackwell Publishing: Oxford. 2006. 339 pp. £89.50. ISBN 1-4051-2561-6.

The title of this book, *Organofluorine Chemistry*, covers a very wide subject area, and as might be expected in a book of only 339 pages, some areas are covered better than others. There is, for example, only one paragraph mentioning fluorous phase chemistry, and the index is woefully inadequate, although this is more likely the fault of the publisher than the author. In fact, the contents pages, which list the chapters and sub- and sub-sub-headings, is a much more useful way of tracking down information on a specific aspect of the subject. The book is well written with plenty of useful references but will be only of limited interest to process chemists unless they are looking for a book to fill in their background knowledge and understanding of organofluorine chemistry

There are seven chapters, covering topics such as Fundamentals in Organic Fluorine Chemistry, Unique Reactions Induced by Fluorine, Reactions Activated by a Strong Interaction Between Fluorine and Other Atoms, Hydrogen Bonding in Organofluorine Compounds, Fluorinated Ligands for Selective Catalytic Reactions, Fluorine in Drug Designs, and Methods for Introduction of Fluorine-Functionality into Molecules. The order of the chapters is a little odd, with a good introductory chapter, concerned mainly with physical and electronic effects, followed by two chapters on synthetic issues, and then a chapter on hydrogen bonding which would have seemed more appropriate as chapter 2.

The chapter of most interest to synthetic chemists comes right at the end and consists of four sections dealing with Monofluorination, Difluorination, Trifluoromethylation, and Perfluoroalkylation. However, this chapter is a fairly exhaustive list of reactions with details of yields and, where relevant, ee's, brief details of reaction conditions, and references, but there is no commentary on the ease of handling of the reagents or any comparison between different methods of introducing fluorine or generating trifluoromethyl groups. If you are interested in a more detailed book on the synthetic aspects of organic fluorine chemistry, *Modern Fluoroorganic Chemistry* by Peter Kirsch, published by Wiley-VCH in 2004 is a much more useful source of synthetic information.

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Synthesis of Naturally Occurring Nitrogen Heterocycles from Carbohydrates. By El Sayed H. El Ashry and Ahmed El Nemr. Blackwell Publishing: Oxford. 2005. 443 pp. £119. ISBN 1-4051-2934-4.

This book does exactly what it says on the label and more. However, it should be pointed out that the term nitrogen heterocycles means what it says and does not include aromatic heterocycles. The book is well organised and consists of six chapters, each of which is devoted to a particular class of nitrogen heterocycles, such as "Five-membered ring nitrogen heterocycles" and "Fused nitrogen heterocycles", arranged according to the size and complexity of the heterocyclic rings. Each chapter is organised in sections containing various different sub-classes; thus, for example under "Fused nitrogen heterocycles" there are five sections such as "Azinomycins", "β-Lactams", and Polyhydroxypyrrolizidines". There is an introduction to each section detailing the natural occurrence of the compound, or compounds, to be discussed. Within each section of the book the syntheses are listed according to the carbohydrate used as the starting material.

The book provides the reader with a wealth of detail on each synthesis, with the schemes "supported" by as much detail as could be expected on the experimental conditions used. One minor criticism is that whilst the various syntheses are described in detail there is little or no discussion on the relative merits of different synthetic approaches. References to other synthetic routes to a particular class of compounds are provided in the reference section at the end of each chapter. However, in those sections, which include several closely related compounds, there is no information as to which compounds are described in each reference. So, for example in the section on Polyhydroxypyrrolizidines, 134 references to other synthetic approaches are listed, and they could apply to the synthesis of any one or more of the 69 compounds described in the introduction. This is, however, a minor fault as the target compounds are of the same class, and many only differ in the relative stereochemistry; thus, a synthesis of one particular compound may well be suitable for adapting to the synthesis of a related compound.

From a process chemist's perspective, this is essentially an academic book on the synthesis of nitrogen heterocycles and so provides a useful starting point for designing a large-scale route to this class of compounds, but the likelihood is that, even if the overall route is retained, significant development is likely to be required on most individual steps.

Overall, the book is a valuable source of information for those involved in the synthesis of nitrogen heterocycles and has a wealth of information and good indexes, including a Natural Source Index (an alphabetical list of plants and microorganisms along with which compounds are produced). Recommended if you are involved in the field.

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