What's in a Name

Nomeclature of Organic Compounds. Principles and Practice. 2nd Edition. By *Robert B. Fox* and *Warren H. Powell.* Oxford Univesity Press, Oxford 2001. XVII + 437 pp., hardcover £ 150.00.—ISBN 0-8412-3648-8

The most important factor in the ever increasing area of international and interdisciplinary scientific exchange is, according to the preface of this book, "that the information passed forward is the same as the information received", that is, in the case of a chemical name it must be "unambiguous and understandable for the audience being addressed". With the aim of providing instructions for this, the authors succeed in bridging the gap between IUPAC and *Chemical Abstracts* nomenclature. Although one of the authors was formerly a *Chemical Abstracts* employee, this book does not put the case for a rigorous nomenclature that leads to a single name for a compound, which is imperative for the *Chemical Abstracts* indexes. On the contrary: in most cases several names are presented for a compound, and a distinction between *Chemical Abstracts* and IUPAC nomenclature is regularly made in the text, with the occasional comparison to the former *Beilstein* nomenclature. The advantages of the IUPAC variant, when the authors prefer it, are justified.

In each chapter the reader is provided with an initial detailed explanatory introduction of the acceptable nomenclature procedures. The presentation of the rules is followed by a discussion that includes, amongst other topics, sources of errors, boundaries with other substance classes, as well as, in most cases, additional examples. Finally, there is a reference section to the chapter.

There are four introductory sections in which nomenclature conventions are explained in general terms as well as in terms specific to this book. A historical overview of the development of chemical nomenclature is also included. The third chapter describes the fundamental methods of organic-chemical nomenclature. Particularly well-worth reading is the fourth chapter, which is dedicated exclusively to typical errors, misunderstandings, and pitfalls.

The next chapters are the obligatory ones on the different parent hydrides—acyclic, alicyclic and aromatic hydrocarbons, and compounds with heteroatoms. The various classes of organic-chemical compounds such as acids, aldehydes, ketones, alcohols, as well as phosphorus, sulfur, boron, and organometallic compounds are dealt with in the subsequent eighteen chapters. Synthetic polymers are covered in chapter 29. The book is completed with chapters on radicals and ions, isotopically modified compounds, and particularly important classes of natural products, including amino acids, carbohydrates, and prostaglandins.

It was pleasing to find a 30-page chapter devoted to the specification of configuration. In this chapter a number of carefully selected examples have been painstakingly worked through—also by means of the methods generally used by *Chemical Abstracts* up until 1998 which are unavailable in such detail from other sources. Sadly, the description of racemates has not been included. This exclusion is particularly unfortunate from the standpoint that since 1998 *Chemical Abstracts* no longer differentiate between a racemate and a pure enantiomer of known relative but unknown absolute configuration, although in the case of drugs these are often not equivalent when a single enantiomer or a racemate is administered.

Whilst errors in a book of this size are unavoidable, they are, in this particular volume, few and far between. However, it is rather embarrassing in the chapter on stereoisomers to find the repeated use of putative "enantiomers" in connection with *meso* compounds. This demonstrates that the use of the prefix *rel-* in front of the name of a *meso* compound, such as has recently become the custom in *Chemical Abstracts*, is misleading if not completely nonsensical.

In addition to the table of contents, successful navigation through the extensive material in this well-structured book can be achieved by means of the detailed index. Other useful features include an appendix with a glossary of important terms in nomenclature, an eight-page table of prefixes with their synonyms and linearized formulas, and a table of common endings.

This excitingly written work, as far as chemical nomenclature can be exciting, is heartily recommended to the readers.

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Transition-metal-catalyzed cross-coupling reactions have become a well established tool of modern synthetic chemistry because of their high efficiency and wide range of applications. However, the impressive pace at which the catalyst systems are developing makes it