drawings are not numbered in all chapters.

Since *Modern Alkaloids* does not aim to teach the basics of important alkaloids, but concentrates on new aspects of alkaloid chemistry, it is not so much intended for students as for researchers working in the field of natural products chemistry, where it closes a gap in the literature. The above criticism about the lack of consistency in the organization of the sections is offset by the richness of the contents and the high quality throughout most chapters, which makes the book a valuable treasure trove, not only for natural products chemists but also for researchers in related disciplines who are interested in new developments in alkaloid chemistry. Therefore, I recommend *Modern Alkaloids* warmly to everybody who is interested in natural products chemistry.

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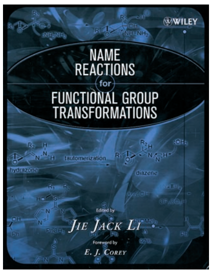
Name Reactions for Functional Group Transformations



Edited by *Jie Jack Li.*
John Wiley & Sons,
Hoboken 2007.
754 pp., hardcover
€ 109.00.—ISBN
978-0-471-74868-7

The concept of the functional group has proved to be very useful in organic chemistry as an aid to the planning of syntheses. However, in this enormous and fast-changing field, it is difficult to avoid losing one's overall perspective. E. J. Corey, in his preface to this book, recommends it as a useful work of reference to help overcome that problem. Under the editorship of Jie Jack Li, 19 authors from industry and universities have collected together detailed information about functional-group transformations, categorized in 47 classes. The spectrum ranges from very simple reactions, such as Fischer–Speier esterifications and Zaitsev eliminations, to complex reactions such as Buchwald–Hartwig aminations and Sharpless asymmetric dihydroxylations.

This book is the second volume in the series *Comprehensive Name Reactions*. The first volume, *Name Reactions in Heterocyclic Chemistry*, was published in 2005, and the present one will be followed by three further ones, *Name Reactions for Chain Extension* (2009), *Name Reactions for Ring Formation* (2011), and *Name Reactions in Heterocyclic Chemistry—2* (2013). The complete list of contents of all the volumes is given in the appendix.

The huge flood of information contained in the present volume is brought under control by a clearly set out list of contents and a comprehensive 45-page index. The subject categories are: asymmetric syntheses (5 reactions), reductions (6 reactions), oxidations (13 reactions), olefinations (8 reactions), amine syntheses (3 reactions), syntheses of carboxylic acid derivatives (6 reactions), and a chapter covering various other name reactions (10 reactions). However, the book is not entirely free of errors in the assignment of the reactions to the appropriate chapters: for example, dehydration reactions are not oxidations, but would be better fitted into the chapter on olefinations. Also, some reactions form C–C bonds, and should therefore be grouped with similar reactions in the third volume of the series. On the other hand, some reactions that clearly only involve an interchange of functional groups, such as Sandmeyer and Mitsunobu reactions, have wrongly ended up in Volume 3 of the series.

Throughout this volume there are many useful cross-references to other name reactions. However, the chapter authors seem to have overlooked the fact that the Corey–Kim and Swern oxidation reactions, which are treated in separate chapters, essentially differ only in the reagents whereby the reactive species ("activated DMSO") is generated. Even some of the same literature references are cited. It would certainly have been better to put these reactions in the same chapter, or at least to give cross-references.

As in the first volume of the series, each chapter on a name reaction is consistently divided into the same seven subchapters, which helps one to keep track of the subject matter. First, on the basis of a generalized reaction equation, the characteristics of the reaction are described and briefly explained. That is followed by a historical survey of the discovery and subsequent development of the method. The discussion that follows, about the mechanism of the reaction named in the chapter title, is very detailed in most cases, and often covers many subtle aspects. In contrast, however, in many cases little information is given about the details of other reactions that are mentioned later in the chapter in connection with the title reaction.

The next part of the chapter describes variations in reagents or reaction conditions, which can, for example, give better yields or selectivities, or introduce possibilities of other substrates or transformations, or simply make it easier to perform the reaction. Many of the authors also mention limitations and unwanted side products. This is especially effective and useful in the description of the Fukuyama amine synthesis, where it is given a separate subchapter. Unfortunately, the advantages and disadvantages of the reaction compared with alternative methods for achieving the same transformation are only discussed in a few cases.

In the subchapter entitled "Synthetic Utility", which is usually the longest, readers will find typical applications of the title reaction, perhaps in some cases embedded within a larger synthetic context. Many authors supply this information in a very clear and concise form. However, especially in the chapters on Perkow, Yamada, and Regitz reactions, there are far too many examples of reactions that are very similar (e.g. for the Yamada reaction the chapter lists 78 different amide syntheses covering 37 pages!). These usually do not illustrate any new aspects, but make it difficult to spot the few really interesting variations. It is also hard to understand why some reaction schemes are shown in which the title reaction itself does not play a part, for example in the chapter on the Perkow reaction, where the reacting enol phosphate has been prepared by phosphorylation of a lithium enolate. In the chapter on the Regitz reaction it seems strange that the reactions of diazo compounds (i.e., the *products* from the Regitz diazo transfer) are described in a separate subchapter, and moreover with as much detail as the title reaction itself.

In many of the schemes the reaction products are shown alongside the reactants, but with significant changes in the conformation, which makes it unnecessarily difficult to follow the reaction. Also, in many cases the yields and selectivities of reactions are not given, even though these are the most important data for evaluating the reaction. Moreover, selectivities that are observed are sometimes not explained or even commented on. In general, one comes across many errors, some minor and some greater; usually these do not destroy the meaning of the text but make it more difficult to understand. In particular the chapter on the Perkow reaction bristles with errors. These and other observations indicate that the book has not received a consistent final copy-editing.

Each chapter on a name reaction ends with some representative experimental instructions, which give a useful impression of the preparative work involved in a reaction, and with an up-to-date list of literature references. A useful practical feature is that review articles are clearly marked.

On the whole, reading this book has been an enjoyable experience. Again and again, one comes across surprising reaction possibilities of well-known reagents, or some lesser known variants of common transformations. According to the editors, the book is intended for organic or pharmaceutical chemists in industrial research, and for advanced students of organic chemistry. I can only agree with that, and also recommend the book to everyone who can identify with Corey's statement: "The desire to learn is the greatest gift from God".

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DOI: 10.1002/anie.200785563