

Review of Reactions and Synthesis in the Organic Chemistry Laboratory

Reactions and Synthesis in the Organic Chemistry Laboratory. By L. F. Tietz, T. Eicher, U. Diederichsen, and A. Speicher (Georg-August University (L.T. and U.D.) and Saarland University (T.E. and A.S.)). Wiley-VCH, Weinheim. 2007. xvi + 582 pp. 17 × 24 cm. \$95.00. ISBN 978-3-527-31223-8 (paperback).

This book is the third edition of a text that was originally published in German in 1981 (English translation published in 1989). The authors indicate in the preface of the text that the new edition includes preparative procedures that involve highly enantio- and regioselective methods and other modern techniques, such as enzymatic transformations, combinatorial chemistry, microwave chemistry, and the like.

The text is split up into four broad chapters: C—C bond formation, oxidation and reduction, heterocyclic compounds, and selected natural products. Each chapter is subsequently split into a series of subchapters that address specific types of each reaction, and the authors use a series of discrete synthetic targets to illustrate each reaction type. First, the desired target is presented and a general background is given on the type of reactions being employed in the synthesis of that target. It is not uncommon for the general mechanism of the reaction to be explained, followed by a more sophisticated example of that reaction type from the literature. The synthetic scheme to reach the target is then introduced, including an explanation of each step of the scheme and mechanisms for key (i.e., enantio- and regiospecific) steps. The practical syntheses themselves are presented much like those published in *Organic Syntheses* (R. L. Danheiser, EIC); any warning, cautions, or notes are presented at the beginning of the entry, followed by detailed procedures, yields, and available characterization data for the desired target. Finally, the entry is followed by references cited in text.

The main audience of this text would be graduate students. In fact, while it was not written specifically as a classroom text, this reviewer feels that the book would be an excellent tool to utilize in a first-year graduate-level course in synthetic organic chemistry. Advanced reactions and techniques are presented in a practical and detailed way, allowing the reader to gain insight into the reactions while employing their knowledge of retro-synthesis and mechanism. This book presents graduate students with a solid template to employ in solving their own synthetic challenges. Since this text delves very deeply into specific examples, this reviewer would not consider it a go-to handbook for professional synthetic chemists, but rather a text to supplement their overall knowledge of the state of the field.

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