

PREFACE

Beginning with Volume 72, a new feature for the *Organic Reactions* series will be introduced by providing a preface that summarizes the chapters included in each volume.

Volume 72 comprises two chapters that can be broadly aligned under the general heading of functionalization and de-functionalization reactions. The first chapter by Engelbert Ciganek (a long-time member of the *Organic Reactions* family and author or coauthor of three previous chapters in the series) covers the introduction of nitrogen-containing functional groups by amination of carbon-based nucleophiles. The range of reagents capable of transferring a nitrogen-containing moiety to a nucleophile is enormous and includes inter alia, haloamines, hydroxylamines, diazonium salts, azo compounds and azides. The scope of carbon nucleophiles is also very broad and ranges from highly reactive organometallic species ("carbanions") to nucleophiles stabilized by heteroatomic groups (sulfur and phosphorus) and more common substrates such as enolates, metalloenamines, enol ethers, and dicarbonyl compounds. In view of the very large substrate scope, this chapter provides invaluable guidance for the selection of an appropriate aminating agent for each type of nucleophile.

The second chapter by Diego A. Alonso and Carmen Nájera covers the removal of a specific functional group, the sulfone. Because of their ability to stabilize directly bound carbanions, sulfones have evolved as useful workhorses in organic synthesis. These anions are powerful nucleophiles and can form carbon-carbon bonds through alkylation, carbonyl and conjugate addition reactions. However, few desirable end products contain the sulfonyl group such that efficient desulfonylation is central to the overall utility of sulfonyl-mediated reactions. Alonso and Nájera present two different kinds of desulfonylation processes, reductive desulfonylation (replacement with hydrogen) and reductive eliminations (formation of multiple bonds). Reductive desulfonylation can be effected by a wide range of reducing agents that operate primarily by single-electron transfer mechanisms. Reductive elimination is the second step of the well-known Julia olefination process and its descendants. Both of these transformations have significant applications in the total synthesis of complex natural products and are thus key components in retrosynthetic strategy. Phantom sulfonyl groups serve in much the same way that phantom carboxyl groups serve in classic carbonyl condensation reactions.

It is appropriate here to acknowledge the expert assistance of the entire editorial board, in particular Stuart McCombie and T. V. RajanBabu who shepherded the first and second chapters in this volume, respectively, and Jeffery B. Press, the responsible secretary. In addition, the *Organic Reactions* enterprise could not maintain the quality of production without the dedicated efforts of its editorial staff, Dr. Linda S. Press and Dr. Danielle Soenen. Insofar as the essence of *Organic Reactions* chapters resides in the massive tables of examples, the author's and editorial coordinator's painstaking efforts are highly prized.

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