

Book review

Organic Reactions, Vol. 22, W.G. Dauben, editor-in-chief, John Wiley & Sons, Inc., New York/London/Sydney/Toronto, 1975, ix + 474 pages, \$24.95, £14.50.

The twenty-second volume of this well-known series contains four chapters, two of which review reactions involving organometallic reagents.

“Substitution Reactions Using Organocopper Reagents”, by G.H. Posner (148 pages, 320 references), covers the oxidative and thermal dimerization of organocopper compounds of types RCu , $\text{RCu}\cdot\text{ligand}$, R_2CuLi and $\text{RR}'\text{CuLi}$ and their coupling reactions with organic halides, various alcohol derivatives and epoxides. The emphasis is on synthetic applications, but questions of mechanism also are considered. The discussions of the nature of these organocopper reagents and of their preparation represent an updating of sections on these topics in a 1972 “Organic Reactions” chapter by the author on other aspects of organocopper chemistry. The present chapter includes an authoritative evaluation of the application of organocopper compounds in substitution reactions as well as 90 pages of tabular material which provides many examples, with complete literature coverage, of such organocopper reactions as published through the end of 1973. Detailed experimental procedures are given for thirteen different organocopper alkylation processes. Professor Posner’s two chapters on organocopper chemistry which have been published in “Organic Reactions” present an excellent up-to-date review of this important new area of organometallic chemistry which will be of great value to the synthetic chemist.

An aspect of organozinc chemistry, the Reformatsky reaction, is the topic of another chapter in this book by M.W. Rathke (38 pages, 237 references). This subject was reviewed in Vol. 1 of “Organic Reactions” in 1942, and the present chapter is an updating covering the period 1941–1973. The discussion covers mechanism and stereochemistry, the side reactions which are encountered and the newer variations of the original reaction procedure. The sections devoted to experimental procedures describe newer methods of activating the zinc metal, promoters for the reaction, the use of new solvents which were not available thirty years ago and the useful two-step variation of the Reformatsky reaction. Six tables provide representative examples of the Reformatsky reaction from the literature of 1942–1973, but this is not an exhaustive listing.

Organozinc intermediates may be involved in the Clemmensen reduction of ketones in anhydrous organic solvents, which is the subject of a short (22 pages, 44 references) chapter by E. Vedejs. The Clemmensen reduction was reviewed in 1942 in Vol. 1 of “Organic Reactions”, and the present chapter serves to bring the more important advances of the past 30 years. It discusses new information on the scope and mechanism of both the aqueous and anhydrous variants, with emphasis on the latter, which was

developed since the 1942 review. Experimental procedures and the tabular survey cover only "anhydrous" Clemmensen reductions.

The longest chapter (253 pages, 439 references) in this book, by S.J. Rhoads and N.R. Raulins, is on the Claisen and Cope rearrangements. Its 72 pages of textual material are backed up by 176 pages of tables containing specific examples from the literature of 1943-1971.

This book is an excellent addition to the organic review literature. Like its twenty-one predecessors, it will be most useful to the synthetic organic and organometallic chemist.

*Department of Chemistry
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139 (U.S.A.)*

DIETMAR SEYFERTH