

## BOOK REVIEW

**Diazo Chemistry II: Aliphatic, Inorganic and Organometallic Compounds.** By Heinrich Zollinger. VCH Verlagsgesellschaft, Weinheim, FRG, 1995. xvi + 522 pp. ISBN 3-527-29222-5. Price: DM 198 [Volumes I and II, DM 348].

This is the promised second volume in the two-volume series *Diazo Chemistry* by Heinrich Zollinger, and as the title indicates, deals with diazo compounds other than the aromatic and heteroaromatic systems covered in Volume I. This series is to some extent an update of the now classic text *Diazo and Azo Chemistry* by the author, first published in 1961, with deliberate exclusion of the “azo chemistry” component and with a marked increase in the coverage of diazo chemistry. The bulk of the new material is contained in this second volume, and for example new topics such as dipolar cyclo-additions, carbenes and carbenoids derived from diazo compounds, and even inorganic diazo compounds are covered. The last, the author admits, could draw criticism from some quarters for its inclusion in an essentially organic chemistry text, but in the reviewer’s opinion such an inclusion adds to the appeal of the book and certainly gives the organic research chemist food for thought. The book is written in the same style as Volume I, and is intended to be a readable up-to-date overview of the field, rather than a definitive review. Nevertheless, the extent of the references (*c.* 2000) and their selectivity makes this an extremely useful source text for the researcher.

A short introductory chapter on the history and nomenclature of aliphatic, inorganic and organometallic diazo compounds is followed by a lengthy chapter on preparative methods for the alkane, alkene and alkyne derivatives. Inorganic diazo compounds and metal complexes with the dinitrogen ligand are dealt with in Chapter 3, and a short but interesting review of the chemistry of nitrogen fixation is included. Chapters 4 and 5 are more physically oriented, covering the mechanism of aliphatic diazotisation and the structure of aliphatic diazo compounds.

Chapters 6–9 cover the various reactions of diazo compounds, namely reactions in which nitrogen is retained (azo coupling and 1,3-dipolar cycloadditions), reactions in which nitrogen is eliminated (dediazonation), and miscellaneous reactions (e.g. substitution at  $\alpha$ -carbon, oxidation and reduction). Chapter 8, which deals with dediazonation of diazides is in fact largely a review of carbene and carbenoid chemistry. Metal complexes of diazonium

and diazo compounds are discussed in Chapter 10, and the book concludes with an 'Epilogue', which in four pages summarises the major milestones in the development of diazo chemistry commencing from first isolation of a diazo compound by Peter Griess in 1858. Here a valid note of caution is made by the author about the uncritical acceptance of predicted molecular properties based on theoretical computations.

The author's written style is clear and leads the reader logically through complex concepts, pointing out the features of interest, and making occasional historical points. Consequently the book teaches as much as it informs. Any chemist, with or without a specific interest in diazo compounds, would benefit greatly from reading this book. Some might find the author's occasional philosophical incursions distracting, but on the whole they add to the character of the book. For the researcher in diazo chemistry, Volumes I and II must be regarded as essential additions to the library shelf.

**J. Griffiths**