

## Book reviews

### Organometallics in Synthesis; A Manual

M. Schlosser (ed)

Wiley, Chichester, UK, 1994

614 pp. £60 (UK), \$95 (USA)

ISBN 0-471-93637-5

There are by now many texts describing the use of organometallic compounds in synthesis. Most restrict themselves to an overall description of reaction types and synthetic possibilities. Few go the extra mile and include actual experimental recipe details of how to *do* the synthesis. To its credits this book does that, and this extra feature makes the book particularly useful in its class. The experimental details are given in full, together with a reference to the original literature source. Accompanying the experimental details are numerous discussions of practical handling and safety aspects of the work. So as a book of recipes, this work has value in itself.

What adds an extra dimension is the combination of the experimental details with the descriptive sections where the history, scope, variety and limitations of the particular reaction type are discussed. Many of the most important synthetic organometallics are covered, namely organoalkali reagents (M. Schlosser), titanium (M. T. Reetz), organocopper reagents (B. H. Lipschutz), palladium (L. S. Hegadus), organoboron chemistry (K. Smith), organoaluminium compounds (H. Yamamoto) and organotin chemistry (H. Nozaki). The chapter on the industrial applications of organolithium compounds (F. Totter and P. Rittmeyer) does not contain experimental details. These are covered in the chapter by Schlosser, however.

Although the experimental details are reproduced in detail and, as the editor notes, the co-authors have 'shared their expertise with the reader', there is no claim that the syntheses would have been personally verified by the individual authors. With only nine authors, this would seem to be impossible. However, this would not detract from the usefulness of the book as all are very experienced in the practical use of the synthesis types they describe. There are numerous references to chiral synthetic work in the text.

The chapters are sufficiently referenced (Chapter 1, 126; Chapter 2, 55; Chapter 3, 328; Chapter 4, 172; Chapter 5, 168; Chapter 6, 103; Chapter 7, 52; Chapter 8, 183). The subject index occupies 16½ pages. The formula index covers about 400 compounds. The experimental descriptions are not presented in uniform quantity but, by way of example, the chapter on titanium in synthesis has 48 experimental descriptions, that on organocopper 124 experiments, palladium chemistry has 19, organoboron 41, aluminium a disappointing 3, tin 9, alkali metals 67. Clearly the coverage is not uniform, but the totality of the synthetic procedures described makes this a very useful handbook in the

areas with which it is concerned. It is disappointing that there are no chapters on magnesium species, nor on Group IIB (Group 12) or on the use of organotransition metals generally. There is still room for a companion volume.

At £60 (UK) I cannot rate this as an over-expensive book. Indeed, I might propose that the proud parents of newly enrolled Ph.D. students in the area consider making a personal copy of this book as a gift to their offspring as they embark on their research careers. I rate this a useful starter pack for new researchers. I also believe that research groups would benefit from holding a laboratory copy. The book should be a standard text for organometallic libraries.

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### Inorganic Experiments

J. Derek Woollins (ed)

VCH, Weinheim, 1994

DM148

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0-527-29235-7 (paperback)

Over the years our department has built up a large collection of undergraduate experiments in inorganic chemistry. Even so, we are always eager to find new ones and the appearance of this well-produced text is therefore very welcome. The stated aim of the editor, J. Derek Woollins, is to provide 'meaningful experiments which develop laboratory skills, introduce interesting chemistry and are reliable and not always easy to find'. Those goals are achieved in some at least of the 65 (or so) experiments. With some 70 authors there are the expected variations in style and the amount of information provided. Each experiment is said to have been tested by the contributing author(s); however, the editor does add the disclaimer '... so we can *optimistically assume* that they "work" ...'. He has subdivided the experiments into 'introductory', 'intermediate' and 'advanced'. This classification should only be taken as a rough guide; for example experiment 2.11 on the preparation of two phosphate esters (not identified) and the use of their <sup>1</sup>H and <sup>31</sup>P NMR spectra for identification would seem, to me at least, to be too difficult as an introductory experiment. A fair number of the experiments have appeared in older inorganic texts and have certainly been in our collection for at least 20 years, e.g. experiments 2.1 (preparation and investigation of some co-ordination compounds), 2.4 (copper oxalate) and 2.7 (linkage isomerism). The method of preparation of ferrocene and its acetylation (3.1) are long-established procedures used in most courses (incidentally, we find that using half the quantities advocated is more than sufficient).

My one major criticism is the lack of information accompanying a large number of the experiments, i.e.