

Book review

Preparative Polar Organometallic Chemistry I; by L. Brandsma and H. Verkruisje, Springer Verlag, 1987, xiv + 240 pages, DM 78, ISBN 3-540-16916-4.

This book is a practical laboratory manual dealing with all aspects of the preparation and uses of organoalkali and Grignard derivatives at sp^2 carbon atoms. This includes metallated derivatives of alkenes, allenes, cumulenes, arenes, and heteroarenes. It is aimed at graduate students and more advanced research workers both in industry and universities.

After a brief introduction and instructions as to how to search the book for a specific reaction type, Chapter I gives a general account of organoalkali metal reagents. It also details the commercially available organolithiums, the purification of the most commonly employed solvents, useful equipment and safety considerations. Some representative experimental procedures are described. Chapter II details the reactions of polar organometallics with electrophiles, including alkyl and acyl halides, CO_2 , carbonyl compounds, sulphur containing compounds, halogens, and silyl derivatives. The subsequent chapters give details of metallation of alkenes and allenes, heterosubstituted unsaturated systems, heteroarenes and arenes. The appendix provides a quick reference to the type of compounds being metallated in pictorial and tabular form. Reaction types are also indexed and I found it very straightforward to access a desired transformation.

The experimental procedures in each chapter are given in clear and meticulous detail. Most modern research papers do not give such details, either because the authors regard them as well known or through lack of space in the journals concerned. Thus apparently minor, but critical, items are often omitted. For the worker without experience in the field this may result in considerable frustration and wasted time. All the procedures described here have been tested in the author's own laboratory.

Many books appearing in recent years have contained useful reviews of the synthesis and reactivity of various types of organometallic reagents, both polar and otherwise. There are probably too many of these, and they contribute comparatively little to the horny-handed son or daughter of toil who actually wants to do something. This book is an exception. It will be taken in the laboratory and regularly propped open on the bench for consultation. I foresee that my graduate students will not let me have it back. This volume (and I look forward to further volumes in the series) should be accessible to every practical preparative chemist, both organic and inorganic, and at this reasonable price, I would expect many to want their own copies. It is excellent and I recommend it without reservations.