

Electroorganic Reductions Syntheses; by S. Torii; Wiley-VCH: Weinheim, 2006, two-volume set, hardcover, 801 pp., 299 €, ISBN 3-527-31539-X

Electrochemical reductions have two distinct advantages over comparable 'chemical' variants of these processes: 1) they use a readily available and very inexpensive reduction agent: the electron, kindly supplied by a socket found in any lab, and 2) the control of potential at the electrode allows a fine-tuning in reactivity and selectivity of the substrates. Both features are highlighted best in the Monsanto hydrodimerization process of acrylonitrile in the industrial production of adiponitrile. This is just one of hundreds of electroorganic reductions which can be found in the two-volume compendium *Electroorganic Reduction Synthesis* by S. Torii. Although over the last five years this subject has been partly covered in the seminal book *Organic Electrochemistry* (4th ed.) by H. Lund and O. Hammerich, and in *Encyclopedia of Electrochemistry* edited by G. S. Wilson, A. J. Bard, and M. Stratmann, this book covers the subject more comprehensively and is very well structured.

The book starts with a very good chapter about the basic theoretical and experimental fundamentals of electroreduction processes. Unfortunately, the quality of information in this chapter can only be appreciated if the reader has already a profound knowledge in electrochemistry. From the beginning, it is clear for whom this book has been written: not for the layman, but for the experienced user of electrochemical reactions who looks for a key to the more than 3400 publications on which this book is based.

The introduction is followed by nine chapters on electroreduction reactions and their product selectivity for the following compound classes: aldehydes, ketones, acids, esters, acid anhydrides; olefins; aromatics; nitrogen compounds; S, Se, and Te compounds; halogenated compounds; alcohols, ethers, and esters; organic compounds involving group III, IVA, VA, IB, and IIB elements; and organometallic compounds. These chapters are very well structured and use functional groups as an organisation el-

ement. With this classification system, it is very simple for the reader to access his subject of interest with the help of the table of contents (which compensates for the very weak subject index). Also, the literally hundreds of schemes allow for the fast browsing of the text. Chapters about the important fields of indirect electroreduction, the use of electrogenerated bases, and electropolymerization complete this book. The reviewer wishes that the author would have also added a short chapter about the significant aspect of industrial applications of electroreduction processes, because the reader is unable to get this kind of information from the text in the individual chapters about the transformation of functional groups. The book ends with a very useful 34-page-strong appendix in which the content of the book is again depicted in reaction schemes of electrochemical reactions, accompanied by the various solvent–electrolyte–electrode combinations and the corresponding references.

Despite its many positive elements, the book has two flaws, which cannot be neglected: First of all, the book contains too many errors! The reviewer stopped counting when their number had surpassed hundred. Although most readers will not change their chemical world view when they discover a pentavalent carbon atom in a scheme or read about a 'Witting-Horner' reaction, these errors are preventable and remain an element of annoyance. Secondly and even more important, although the amount of literature coverage in this book is huge and impressive, no original reference younger than 1995 has been included in this book!! Therefore, the reader should not be surprised, when he reads 'most recently' in the text, this passage refers to a reference from the year 1994.

In summary, the reviewer thinks that despite the above-mentioned severe caveats this book still remains a very helpful resource which is of interest for the specialist in electroorganic synthesis, who will be able to take advantage of the well-organised vast amount of literature that has been condensed into this book.

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