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Book Review

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BOOK REVIEW

Electroorganic Chemistry as a new Tool in Organic Synthesis, Reactivity and Structure Concepts in Organic Chemistry, Volume 20 by T. Shono, Springer Verlag, Berlin, Heidelberg, New York, Tokyo, 1984, 171 pp., 49 tables.

The preparation of organic compounds by means of electrochemical methods in aqueous or non-aqueous systems has gained great importance during the last 15 years. A number of electrochemical syntheses have been realized on a commercial scale. A few books and many papers have been published, respectively, on the theoretical foundations or of electroorganic syntheses or of results of syntheses carried out with several groups of compounds, but there has not yet been offered a comprehensive work of reference which would have helped orientation with this mass of original literature. This book focuses on the results achieved in the field of synthesis. Results relevant to theoretical and analytical advances of electroorganic chemistry are not considered in this book. Anodic oxidation processes which are useful in organic synthetic practice are described in the first chapter (120 pages). Sub-chapters are arranged on the basis of the nature of the starting materials, their subject matters are anodic oxidations of the carbon-carbon double bond, the oxidation of alcohols, glycols, acetals of organic sulfur, phosphorus and boron compounds, further the oxidative halogenation and dehalogenation of different compounds, finally several syntheses of aromatic substances. Only 35 pages of this book describe the syntheses of organic compounds feasible by means of cathodic reduction. In contradistinction to the first chapter, the second discusses the syntheses according to the various reaction types. In an appendix the schematic illustration of some apparatus suitable for preparative electrolysis proves that these are not sophisticated and easily accessible to any organic chemist.

This is a valuable book for research staff working with organic synthesis which cannot be achieved with traditional methods.

The examples described in this book and more than 600 references to pertinent literature will help the readers to devise, on the basis of analogy, new methods of synthesis.

It would be well, in an amplified edition, to correct the existing slant by allotting more space to the field of cathodic reductions, ordered and described on the basis of the substrates in question.

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