

## Book review

**J.R. Sowa Jr. (Ed.), *Catalysis of Organic Reactions*, Chemical Industries Series, vol. 104 CRC (Taylor & Francis), Boca Raton, 2005, (624 pp., US\$ 199.95/£115.00, ISBN 0-8247-2729-2).**

Volume 104 of the *Chemical Industries Series*, published by CRC (Taylor & Francis) is a collection of 63 papers presented at the 20th Conference of the Organic Reactions Catalysis Society (ORCS) of USA, held in March 2004. The book covers recent progress in the catalysis of organic reactions: the preface by the Editor, J.R. Sowa Jr., gives an overview of the five major symposia held during the conference.

The lead-off symposium focused on *Catalytic Hydrogenation*, the main topic of the book, and consisted of 19 papers. Five papers are presented in the subsection *Hydrogenation on Raney-type Catalysts*, this including the 2004 Murray Raney Award address by J. Lessard on his work on the Electrocatalytic Hydrogenation of organic compounds at Raney Metal electrodes. The other two subsections are focused on *Anchored and Supported Hydrogenation Catalysts* (nine papers) and on *Hydrogenation of Interesting Substrates and Renewable Sources* (five papers). Most of the papers in this symposium deal with reactions carried out in the liquid phase with solid catalysts. The catalyst is employed in the phase homogeneous with that of the reactants in five of the papers, mostly in the third subsection.

The second symposium, on *Novel Concepts and Approaches to Catalysis of Organic Reactions* (17 papers), contained a number of papers of great interest, these including 5 papers in a subsection titled "*Combinatorial and Parallel Methods in Catalyst Design, Optimization and Utilization*", this being a Featured Technology Area for the Conference. In the work reported in this section, the reaction medium is again mostly a liquid; however, in two of the papers, the reaction is carried out in the gas phase. Several of the papers (four) present data on reactions which are homogeneously catalysed.

The third symposium, on *Acid–base Catalysis*, contained eight papers focused on a wide range of reactions. All but one of these take place in the liquid phase. On the other hand, the reactions presented in the five papers hosted in the symposium on *Catalytic Oxidation*, the fourth of the series, are carried out

mostly in the gas phase; in all these cases, which cover the oxidation of alkanes, olefins, alcohols and aldehydes, the reaction was catalysed by solid materials.

The last section of this book focuses on *Catalysis in Organic Synthesis*. The first of the 15 papers of this symposium is the 2004 Paul N. Rylander Award address by R.C. Larock on "*Palladium-catalysed Annulation and Migration Reactions*". Deprotection and asymmetric catalysis are the two main subsections of this part. All the reactions presented in this symposium take place in liquid phase. Palladium, often supported on carbon, is the most used catalyst in the papers of this section; other metals employed are Rh and Pt. In five of the papers, the catalyst is in the same phase of the reactants. One of these studies interestingly compares homogeneous and anchored catalysts.

The book covers a wide range of organic reactions catalysed in both homogeneous and heterogeneous phases. Hydrogenation and oxidation are the topics of two of the main symposia but many other reactions are featured in the book. Such a variety of catalytic reactions, including cross-coupling, carbonylation, oxidative dehydrogenation, hydration, ring opening, alkylation, condensation, esterification, annulation, migration, hydroformylation, deprotection, debenzylation, together with the use of liquids other than water as reaction media, widen the scope of the book. Worth noting are also the contributions provided by many well known companies such as Solutia, INVISTA, Engelhard, Endura, CombyPhos Catalysts, General Electric Global Research, Degussa, BP Chemicals, Dixie Chemical Company, Enitecnologie and Bristol-Meyers Squibb.

The ensemble of works collected in this book gives a useful combination of fundamental and applied research and makes it a useful source of information for beginners as well as for experienced chemists.

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