Liquid Phase Aerobic Oxidation Catalysis: Industrial Applications and Academic Perspectives
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DESCRIPTION

The first book to place recent academic developments within the context of real life industrial applications, this is a timely overview of the field of aerobic oxidation reactions in the liquid phase that also illuminates the key challenges that lie ahead.

As such, it covers both homogeneous as well as heterogeneous chemocatalysis and biocatalysis, along with examples taken from various industries: bulk chemicals and monomers, specialty chemicals, flavors and fragrances, vitamins, and pharmaceuticals. One chapter is devoted to reactor concepts and engineering aspects of these methods, while another deals with the relevance of aerobic oxidation catalysis for the conversion of renewable feedstock.

With chapters written by a team of academic and industrial researchers, this is a valuable reference for synthetic and catalytic chemists at universities as well as those working in the pharmaceutical and fine chemical industries seeking a better understanding of these reactions and how to design large scale processes based on this technology.

ABOUT THE AUTHOR

Shannon Stahl is a Professor of Chemistry at the University of Wisconsin-Madison, USA, since 1999. After undergraduate studies at the University of Illinois at Urbana-Champaign, USA, he attended the California Institute of Technology, USA, for doctoral studies. He worked on Pt-catalyzed oxidation of methane to methanol in the laboratory of Prof. John E. Bercaw and obtained his Ph.D. in 1997. From 1997-1999, he conducted postdoctoral research in the lab of Prof. Stephen J. Lippard at Massachusetts
Institute of Technology, USA, investigating the enzyme methane monooxygenase. He has published >120 research articles and is the recipient of numerous awards, including the Humboldt Senior Research Award, ACS Cope Scholar Award, Sloan Research Fellowship, and he is a Fellow of the AAAS. His research group specializes in the development and mechanistic characterization of catalytic aerobic oxidation reactions.

Paul Alsters is a Principal Scientist at DSM Ahead R&D B.V. - Innovative Synthesis (Geleen, The Netherlands). He received his Ph.D. at the University of Utrecht, The Netherlands, in 1992, working on C-O coupling reactions of organopalladium compounds under the guidance of Prof. G. van Koten. He did postdoctoral work on asymmetric titanium mediated nucleophilic additions to aldehydes in the laboratory of R.O. Duthaler at Ciba-Geigy in Basel, Switzerland. He joined DSM in 1993. His main areas of interest are development of scalable break-through methods for new or existing products, and liquid-phase catalysis, with an emphasis on C-X or C-C coupling reactions and oxidation catalysis. His research activities frequently operate at the interplay of catalysis/synthesis and other sciences, in particular materials science. He is the (co-)author of >70 articles or book chapters and (co-)inventor of >20 patents.

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