

The Mizoroki–Heck Reaction. Edited by M. Oestreich. Wiley: Chichester. 2009. 587 + xix pp. Price £109.30. ISBN 978-0-470-03394-4.

The Mizoroki–Heck reaction is one of the modern catalytic carbon–carbon bond-forming reactions and was due a book on the subject. This book covers all the academic aspects of the reaction in 16 chapters including Mechanisms of the Mizoroki–Heck Reaction, Focus on Catalyst Development and Ligand Design, Focus on Regioselectivity and Product Outcome in Organic Synthesis, Waste-Minimized Mizoroki–Heck Reactions, Formation of Carbocycles, Formation of Heterocycles, Chelation-Controlled Mizoroki–Heck Reactions, The Mizoroki–Heck Reaction in Domino Processes, Oxidative Heck-Type Reactions (Fujiwara–Moritani Reactions), Mizoroki–Heck Reactions with Metals Other than Palladium, Ligand Design for Intermolecular Asymmetric Mizoroki–Heck Reactions, Intramolecular Enantioselective Mizoroki–Heck Reactions, Desymmetrizing Heck Reactions, Combinatorial and Solid-Phase Syntheses, Mizoroki–Heck Reaction: Modern Solvent Systems and Reaction Techniques, The Asymmetric Intramolecular Mizoroki–Heck Reaction in Natural Product Total Synthesis.

Despite a first chapter on the mechanisms of Mizoroki–Heck Reaction many of the chapters start with a discussion of the mechanism which becomes a little tedious after a while. However almost all aspects of the reaction are covered

in detail with the one exception being reductive Heck reactions which are only mentioned in passing. There are some useful examples for discovery chemists in the chapter on Combinatorial and Solid phase Synthesis, but despite several industrial contributors there is not much extra for the development chemist. Having said that, there is probably enough academic information to enable a good process chemist to develop an efficient industrial process. The chapter title Waste-Minimized Mizoroki–Heck Reactions is slightly misleading but is about carrying out Heck reactions via C–H activation of aromatics rather than using a bromoaromatic compound to couple with an olefin.

Each chapter has a large number of references, and these are pretty up to date with the most recent references being from 2007. Overall this book is a welcome addition to the subject and provides almost all the areas one would want to be covered. Process chemists should not expect any specific examples related to scale-up, but the book does not pretend to cover development aspects of the subject. The price is reasonable, considering the amount of material provided, and so the book is recommended.

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