



## Book review

**Catalytic synthesis of alkene-carbon monoxide copolymers and cooligomers.** Volume 27 of catalysis by metal complexes Edited by Ayusman Sen, Kluwer Academic Publishers, Dordrecht, The Netherlands, 2003, pp. 325 + x, EUR 148, US\$ 143, UK£ 93, ISBN 1-4020-1129-6

This 306 page volume in the series Catalysis by Metal Complexes is concerned with the field of alkene/carbon monoxide reactivity, predominantly utilising palladium-based complexes as catalysts and including reference to other systems (e.g., Rh- and Co-based catalysts) where appropriate. After a very brief introductory chapter outlining the basic processes involved in this area of chemistry and identifying future developments, the next three chapters deal sequentially with the production of molecular species, cooligomers, and high-molecular-weight polymers. These chapters explain clearly and concisely the rationale behind the use of various catalysts to generate the different molecular weight materials, necessarily concentrating on ligand design and the effects that this has upon reactivity. In addition, due to the industrial importance of many of the systems described, other aspects are addressed where appropriate, such as process development and the state of the catalyst under actual slurry conditions (which varies from that observed on the bench).

The following four chapters focus on the polymerisation process, dealing with initiation and termination mechanisms (Chapter 5) and chain propagation (Chapter 8) as well as stereochemical aspects of the process. Again, the ligands are surveyed in some detail which, although at times seems a little repetitive, does allow each chapter to stand alone as a summary of the particular topic. The final chapter looks at theoretical aspects of the mechanism of copolymerisation, dealing with the energetics of the various states that the metal complex adopts during a catalytic cycle.

For the most part, the diagrams are presented clearly throughout the text, although a consistent overall style would have improved the presentation. The final result is an excellent reference book, of particular use to those new to the area, although still of value to people with more expertise in this important field of chemistry.

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