

The author deviates somewhat from the title by including heterobimetallic derivatives such as the "ate" complexes derived, for the most part, from the alkali-metal ligand precursors. Brief commentaries on Schiff base ligands and on mixed ligand systems (i.e. cyclopentadienyls) are included. Finally the article ends with an excellently reviewed section dealing with the applications of the "LnOR" systems previously described.

Lanthanide Metallocenes in Homogeneous Catalysis

F.T. Edelmann

The final article is a review of recent developments in the use of lanthanide metallocenes in homogeneous catalysis and reports on olefin transformations such as hydrogenation, polymerisation, hydroamination, and hydroboration; diene and alkyne transformations such as cyclization, hydrosilylation and polymerisation; and finally polyester formation and some miscellaneous hydrogenation and isomerisation catalysts.

In conclusion this book is highly recommended for any serious researcher in the area of lanthanide chemistry.

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Handbook of Palladium-Catalysed Organic Reactions, Jean-Luc Malleron, Jean-Claude Fiaud and Jean-Yves Legros. Academic Press, 1997, 304 pages. £50, ISBN 0-12-466615-9.

Palladium has a long and distinguished history in homogeneous catalysis. The complexes used are simple, largely air- and water-stable and readily available. The mechanisms are often well-understood and organic chemists have a good "feel" for what can be done. The problem is that there is so much literature that finding the right references quickly can be quite difficult.

This handbook organises reaction types into 84 classes (e.g. "Cross-coupling of terminal alkynes with RX derivatives", and "Substitution, addition and elimination of on π -allyl substrates"). Each of these 84 classes has a graphical abstract which aids enormously in finding the type of reaction one needs. The main body of the Handbook is taken up with an organisation of over 3000 reactions into the 84 classes. Of course, the population of each class varies enormously; "Cross-coupling of organometallics with RX deriva-

tives" has over 400 entries while, "Allylation of pronucleophiles with allylstannanes" has but one.

The Handbook is clearly laid out and is easy to use. Choose the reaction type, check out the mechanism, browse the entries and look up the references. There is also a CD-ROM, "Database of Palladium Chemistry: Reactions, Catalytic Cycles and Chemical Parameters on CD-Rom", (£545 + VAT) with which one can search for reagents, products, mechanism, author name, periodic structure, substructure, solvent, catalyst ligand and other parameters. See <http://www.hbuk.co.uk/ap/books/palladium> for details. I cannot tell you how the (PC-format only) CD performs because only a demonstration copy was provided.

At £50 the Handbook is a bargain. It is a shame that it is bound in spiral with a fragile cover since I imagine the Handbook being used in the lab environment. It is, after all, not the sort of book that one might take to bed of an evening. Then again, neither is the Yellow Pages.

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Synthetic Methods of Organometallic and Inorganic Chemistry (Herrmann/Brauer) Vol 6, F.T. Edelmann (ed.), Thieme, Stuttgart, 1997, x + 226 pages, DM124. ISBN 3 13-103071-2.

This is the sixth in a new series of eight volumes on *Synthetic Methods of Organometallic and Inorganic Chemistry* edited by W. Herrmann and intended as a successor to the *Handbuch der Präparativen Anorganischen Chemie* which inorganic chemists know simply as *Brauer*. The scope has been expanded to take account of the considerable growth of organometallic chemistry since the earlier volumes of Brauer were published. As organometallic, alkoxy, amido and coordination compounds are almost always synthesised from simple inorganic precursors such as halides or oxides it is appropriate that the syntheses of all these classes of compounds of a particular group of elements are brought together in a single volume.

The book has been edited by F.T. Edelmann and P. Poremba. Besides the sections they have written themselves there are extensive contributions from a wide range of experts who have been responsible for the development of the inorganic and organometallic chemistry of the *f*-block elements. The four chapters cover

inorganic compounds and starting materials, organolanthanide compounds, actinide elements and their compounds, and organoactinide complexes. There are numerous references (including some from as late as 1996 and a few to unpublished work), as well as tables of data obtained during the characterisation of the various compounds. There are also points about safe working practice and many diagrams showing how the equipment needed for syntheses can be assembled. The book therefore provides welcome information to supplement that in the original research papers. Inevitably in a book of this kind with contributions from a large number of authors there is some inconsistency in the information provided from compound to compound. Data required to check the identity or purity of a product are given for most compounds and these seem to be entirely appropriate in a book on preparative chemistry. It is less clear why, in some cases, crystal data, bond lengths and angles are included since the significance of these is apparent only in a context which extends well beyond that of synthetic methods.

This will be an extremely useful book which will save many hours of searching in the literature. It will provide authoritative procedures and a huge amount of essential information for those working on the syntheses and properties of lanthanide and actinide compounds.

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Palladium Reagents and Catalysis; Innovations in Organic Synthesis, by Jiro Tsuji, John Wiley and Sons, Chichester, UK 1995, reprinted with corrections 1996, xiv + 560 pages, paperback, £40.00 ISBN 0 471 972029.

In terms of its uses in organic synthesis, one could easily say that palladium has been one of the key elements of the last two decades. The story begins with the use of the Wacker reaction to convert terminal alkenes to methyl ketones, continues with palladium catalysed substitution of aryl and vinyl halides, and of

allylic derivatives, to the more recent cascade processes and cycloisomerisations. A quick glance at any recent issue of the *Journal of the American Chemical Society* will assure the reader that developments are not over; well-known processes are seen in new contexts, but there are also ever-more ornate construction reactions involving palladium complex catalysed processes. The author of this work has made a major contribution to the development of this field and this book is his second overview – an unrecognisable transformation of its 1980 predecessor.

The book is well-organised and the material categorised in a helpful way. Stoichiometric and catalytic reactions are separated, but the chapter on catalytic processes would have benefited from being split up. The final chapter also deals with catalytic processes, and is difficult to see why this group were separated. The referencing is comprehensive; there are over 2400 references in the work. The cut off date seems to be late 1993 with a few references from 1994. Given the speed at which the field is moving, this is unfortunate; there have been some exciting recent developments which are omitted, particularly in the area of cascade reactions. However, built-in obsolescence is probably inevitable in this area.

The book is generally well produced with many and clear diagrams. I found few typographic errors, but some of the writing is dense and hard work. This is definitely not an easy read, and some more aggressive editing would have been welcome. The index could be better; there are many entries for specific compounds, (citral, dopamine khellin pumiliotoxin), but none for “asymmetric”, “enantioselective”, “deallylation” or “cycloisomerisation”.

Overall, this is a very useful book, and has high information content for its modest cost. It should be essential reading for anyone working in the field, but with the exciting developments currently taking place, it may have a limited shelf life.

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