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Book reviews

Aspects of Homogeneous Catalysis, Vol. 7, Renato Ugo (Ed.), Kluwer Academic Publishers, 1990, 118 pages. £34. ISBN 0-7923-0888-3

This volume of the well-known series contains four reviews, of rather varied types. The first discusses large transition metal clusters as a bridge between homogeneous and heterogeneous catalysis. This has been a theme beloved of writers of grant proposals in cluster chemistry for many years, but it does now seem that such research is beginning to bear fruit. There have been some practical applications of catalysis by large clusters, though these do decompose easily except when anchored on a solid support. There is also progress in the use of supported metal crystallites, and polymer stabilised metal colloids as catalysts. Advances in microscopy have made it possible to study such systems better, in some cases at atomic resolution, and should aid rapid further development in this field.

The second review details some aspects of transition metal catalysed synthesis of organometallic polymers. These include a wide range of dehydrocoupling reactions at silicon and boron, some syntheses of polysilazines, redistribution reactions leading to polysiloxanes, and some ring opening reactions. Richard Fish then reviews homogeneous catalytic hydrogenation of aromatic hydrocarbons and heterocyclic nitrogen compounds. This is dominated by cobalt and ruthenium chemistry, and provides a good introduction to both the synthetic and mechanistic aspects of the subject. It deals carefully with the H/D exchange reactions which so often accompany reduction in polynuclear heterocycles.

The final section considers surface organometallic chemistry on oxides, on zeolites and on metals. This is a clear introduction, and good examples have been chosen from the wide range available. The rules of organometallic chemistry can be readily applied to species attached to surfaces, and well-defined surface complexes prepared. There is a limited account of possible catalytic reactions. My only criticism would be of the quality of the diagrams; some bonds have reproduced poorly (for example page 96), and some structures have been reduced so much in size that they are very difficult to follow (page 99).

The book has been produced from camera-ready copy, and the styles differ considerably between chapters. Overall production standards are reasonable and there are no more than acceptable typographic errors and examples of infelicitous use of English. The index is so eccentric as to be close to useless; topics which rate only a one line mention as possible applications of synthetic products are included (*e.g.* non-linear optical devices, ceramic fibres) but ruthenium palladium and cobalt are not. The individual articles in this volume are interesting and well-written, but overall it seems a bit lightweight, and there are many other review volumes of this type on the market.

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