

similarly good job of iron-based model studies of the dioxygenases, with a worthy description of various model compounds and proposed mechanisms of oxygenation. This is complemented by the fourth chapter which covers all the non-iron model complexes for dioxygenase activity.

Chapter 5 on cytochrome *P*-450, however, is a little bit of a disappointment. The cytochromes *P*-450 are a vast class of enzymes with many hundreds of examples known. These mono-oxygenases use the same basic chemistry to catalyse the oxygenation of a huge variety of compounds. There is an intense research effort throughout the world on these enzymes from both prokaryotic and eukaryotic sources and high-resolution crystal structures have been determined for four different cytochromes *P*-450. I had expected therefore that this chapter would contain a similar level of detail as chapter 2 for dioxygenases. Unfortunately this was not the case; in fact, this is one of the shorter chapters in the book. Cytochrome *P*-450cam (the enzyme from *P. putida* which converts camphor to 5-*exo*-hydroxycamphor) is the most studied of all the *P*-450 enzymes and not surprisingly this is the *P*-450 described in this section. The chapter focuses almost entirely on the mechanism of oxygen activation by *P*-450cam. This is fair enough, I suppose, but for a reader wishing to learn more about these enzymes it might have helped to have more detail on the variety of *P*-450s and their range of substrates. The actual description of oxygen activation by *P*-450 is quite good, and the coverage of the role of certain active-site residues in catalysis is also well presented.

Following on from *P*-450 is a chapter on model studies of haem mono-oxygenases. This covers most aspects of synthetic haem models for *P*-450-like activity, including the formation of oxyferryl porphyrin π -cation radical species analogous to the so-called compound I seen in catalases and peroxidases. This is a worthy chapter with good diagrams of the various metalloporphyrin models and an extensive reference list.

Chapter 7 is concerned with non-haem mono-oxygenases. These are a fascinating group of enzymes and one of the most interesting is methane mono-oxygenase. This enzyme uses oxygen to convert methane into methanol. The properties and mechanism of action of the enzyme are described in detail and there are useful tables and figures which summarize the various organic compounds on which methane mono-oxygenase can act. The copper-containing mono-oxygenases, tyrosinase and dopamine- β -mono-oxygenase, are briefly described towards the end of this chapter. The book closes with a section on chemical models for the non-haem iron and copper mono-oxygenases.

So what is the overall verdict? In many ways reading this book can be a little irritating: the tenses seem to chop and change, and plurals and singulars appear to be used randomly at times, particularly in certain chapters. This is however a very minor criticism. In fact, some of the chapters are really excellent and on balance one has to say that the volume is well put together. The other nice

thing worth mentioning is that the book has just the right mixture of chemistry and biology to make it of interest and of value to chemists and biochemists alike. I am sure that both groups will find it extremely useful as a reference text. I would, therefore, recommend that anybody working in the field should get hold of it, or at least make sure their library has a copy.

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Gmelin Handbook of Inorganic and Organometallic Compounds

Series editors: U. Krüerke, C. Siebert and B. Wobke

Part 6. Germanium-Fluorine Compounds and Triorganogermanium Chlorides

P. Mazerolles, C. Siebert and B. Wobke

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This volume is devoted to organogermanium fluorides of all types and to triorganogermanium chlorides (R_3GeCl , R_2RGeCl , $RRRGeCl$ and germacyclic compounds); the literature is covered to the end of 1994. Like earlier volumes in this series, it is logically structured: data on given types of compounds appear in tables, each of which is followed by general remarks and, where appropriate, supplementary data on individual compounds. Separate tables/diagrams are devoted to such things as vibrational- and mass-spectroscopic data. Each section ends with a list of references, arranged in order of year of publication and alphabetically by author within each year, making it very user-friendly. In addition an invaluable empirical formula index is included at the end of the book.

This, again like all earlier volumes of Gmelin, is a book all university libraries should possess, but regrettably the very high price will make this impossible.

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Main Group Elements and their Compounds

V. G. Kumar Das (ed.)

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