The “Handbook of Asymmetric Heterogeneous Catalysis” is a substantial text that sets out to cover the wide-ranging topic of enantioselective reactions in mixed media. It consists of a number of “review” style chapters, each approximately 50 pages in length (and containing between 40 and 180 references each – well over 1000 in total) covering subjects ranging from: Heterogeneous Enantioselective Catalysis using Inorganic, Organic, Polymer and Dendrimer supports; Fluorous Catalysis; Catalysis in Aqueous and Ionic Liquids and Supercritical CO2; Phase-Transfer Catalysis; Enantioselective Hydrogenation on Metal Surfaces and a final chapter by Hans-Ulrich Blas on Industrial Applications.

The first chapter, co-written by Zheng Wang along with the two editors, Ding and Uozumi, serves as an expanded introduction to the remainder of the book. In it, a paragraph or two is dedicated to each technique or research area that the subsequent contributors (all experts in their respective fields) discuss in more detail. As such the introduction chapter gives an accurate insight into the composition of what follows.

The majority of the book is dedicated to the immobilisation of asymmetric homogeneous catalysts on different, usually inert, materials. In fact, only two out of the twelve chapters that make up this book, focus on reactions where the heterogeneous surface plays an active chemical role in the mechanism of the reaction – in these cases the surfaces involved are invariably metallic in nature and may be considered intrinsically chiral or have been previously modified with a chiral reagent. The first of these chapters, written by Takashi Sugimura, gives an overview of the well-known Cinchona Alkaloid-Modified Platinum and Palladium systems and that of Tartaric Acid-Modified Nickel before discussing some less common, albeit interesting, systems. The second such chapter, is that already mentioned, by Blas concerning Industrial Applications of Heterogeneous Catalysts who, again, mentions Cinchona Alkaloid-Modified Platinum and Palladium systems and Tartaric Acid-Modified Nickel and their applicability to, and related problems when used in, industry. Blas also goes on to talk about Immobilized Chiral Organo-Metallic Complexes and their uses in industry by companies such as the Engelhard Corporation and Johnson Matthey.

While the imbalance between the reporting of the use of “active” and “inert” heterogeneous supports may leave some wanting for more detailed descriptions of the former, the inclusion of the many descriptions of reactions by Immobilised Complexes is detailed, informative and well written. A broad range of complexes, supports and solvents are covered in many combinations in the context of important asymmetric reactions – particularly in the area of enantio-direction during the hydrogenation of C=C bonds.

Overall, this is an informative and well-written reference book aimed firmly at the research sector. It is well laid-out and constructed and would be a worthwhile addition to the bookshelf of any researcher interested in Heterogeneous Asymmetric Catalysis.

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Reading