

Book Review

Transition Metals in Homogeneous Catalysis; ed. by G.N. Schrauzer, Marcel Dekker, Inc., New York, 1971, ix + 415 pages.

The lack of comprehensive reference books on the subject of homogeneous catalysis by transition metal compounds has made learning and teaching the subject very difficult. "Transition Metals in Homogeneous Catalysis" will now provide a useful reference for these purposes.

The book has been divided into seven chapters each written by an author or authors actively engaged in research in the area of catalysis which they have written about. The seven chapters cover the major areas of importance in the field. There is an introductory chapter by the editor which presents fundamental information about catalysis and defines the subject. The second chapter, by Kwiatek, discusses hydrogenation and dehydrogenation on the basis of probable reaction mechanisms. The known catalysts are described and their selectivities discussed. A chapter on π -allyl systems in catalysts by W. Keim reviews the extensive literature on cyclic and linear oligomerization and telomerization reactions of olefins, dienes and alkynes. The fourth chapter by E.W. Stern summarizes the great variety of known metal catalyzed oxidation reactions: olefin and alcohol oxidations, oxidative coupling reactions, acetoxylation, autooxidation and reactions of metal oxygen complexes. Carbonylation is the subject of another chapter. D.T. Thompson and R. Whyman summarize the vast amount of literature on the various types of carbonylation reactions. Mango and Schachtschneider have contributed a chapter on "Catalysis of symmetry forbidden reactions" giving the reader a picture of the current thinking about molecular orbital interactions occurring in transition metal catalyzed reactions. The final chapter by R.D. Linck gives a comprehensive account of catalysis by electron-transfer reactions.

The authors have succeeded in accurately summarizing the available information on the major areas of interest in homogeneous catalysis by transition metals. The major value of the book will be to those wishing to be easily brought up to date on the subject. No attempt was made to make the topics comprehensive but essentially all of the major contributions to the subjects discussed are listed. The book, therefore, provides a valuable source of references for those wishing more information than could be given in this relatively brief account of transition metal catalysis.

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