

Book reviews

Solvation, Ionic and Complex Formation Reactions in Non-Aqueous Solvents. Experimental Methods for their Investigation. By Kalman Burger, 1983, 268 pp. Price: US \$61.75 (in U.S.A. and Canada) Dfl. 145.00 (Rest of World). ISBN 0-444-99697-4.

The study of solvation phenomena crosses many disciplines of chemistry, physics and even biology. This book is therefore of potential interest to a wide readership. The opening chapters deal with general characterization of solvents and solid properties and solvent-solute interactions. Chapter 4, one of the larger chapters in the book, deals with donor-acceptor interactions. This chapter contains the characterization of donor strength by means of different techniques including heats of solvation, crystal field energies, ionization energy, conductometric measurements, polarographic measurements, infrared, NMR, and electronic spectroscopy, etc. It also includes discussion of the various models which have been put forward, particularly those by Drago, Koppel-Palm, Krygowski-Fawcett, Gutmann-Mayer and Kamlet-Taft. Chapter 5 continues with a discussion of the experimental methods employed to obtain solvent information with particular reference to a wide range of spectroscopic techniques. Chapters 6 and 7 deal with the effect of solvent on structures and stabilities and upon kinetics and mechanisms of coordination reactions while chapter 8 deals with solvent mixtures and their effects on various chemical processes. Chapter 9 is a useful compilation of data concerning the analytical purity of solvents and their purification. Each chapter is individually referenced in alphabetical order making it very easy to obtain references to individual people. Note however that this book was originally written in Hungarian and then translated into English. There are very few references later than 1980. The style is very readable and both author and translator (Dr. D. Durham) are to be congratulated.

For those wishing a general introduction into solvation phenomena this book will be useful. However, those wishing a deeper, more sophisticated and intensive study of solvation effects will be disappointed. Although the Born and Onsager models are discussed the treatment is superficial and more recent work, for example that of Kirkwood, is omitted. The discussion of solvation effects in electronic spectroscopy is superficial and lacks, for example, the important effects of solvation upon intervalence transitions and

charge transfer transitions, the latter being almost exclusively restricted in this volume to iodide. Solvent effects in electrochemistry are also omitted. Within these limitations the book is a useful addition to the bookshelf of anyone interested in solvation phenomena.

The Editor's Desk

Topics in Current Chemistry, Fortschritte der Chemischen Forschung. Managing Editor F.L. Boschke, Guest Editor H. Yamatera, Vol. 110, by M. Shibata, *Modern Syntheses of Cobalt(III) Complexes*. Springer-Verlag, Berlin-Heidelberg-New York, 1983, 44 figs., 31 tables, pp. xii + 120, (cloth) DM68.00 (approx. U.S. \$27.00). ISBN 3-540-12041-6.

This book was written by one of Japan's leading Coordination Chemists who most tragically passed away shortly after completion of the manuscript. The volume begins with a brief survey of Shibata's contributions written by a guest editor and friend, Professor Hideo Yamatera. In an era when theoretical chemistry is so popular it is refreshing to see a book which so positively emphasizes classical synthetic coordination chemistry. Chapter 1, entitled *Some Modern Methods of General Syntheses*, as its title suggests, discusses a wide variety of standard synthetic procedures for making a range of cobalt(III) complexes. Chapter 2, entitled *Versatile Uses of Tricarbonylcobaltate(III) as Starting Material*, discusses the use of this specific complex as a precursor to a range of more complex cobalt derivatives. Chapter 3 deals with *Preparative Application of Chromatography* which is so important in the purification of cobalt(III) compounds and discusses a range of different support materials and their value for different kinds of compounds. Chapter 4 deals with *Stereoselectivity in Complexes with Less Puckered Chelate Rings* and emphasizes optically active materials, dipeptide complexes, etc. In chapter 5 the *Design of Low Symmetry Complexes* is considered with reference to complexes exhibiting marked splitting in the second absorption band and again more information on chiral derivatives. The book will prove invaluable to people involved in the chemistry of cobalt(III) but also in a more general sense to coordination chemists as a group.

There are no subject or author indexes to this book but there is an author index for Volumes 101 to 110 of this Series.

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