

Book review

Gmelin handbook of inorganic chemistry, 8th Edition. *U — Uranium, Supplement Volume D1: Properties of Uranium Ions in Solutions and Melts*, Springer-Verlag, Berlin, Heidelberg, New York, 1984, xvii + 380 pages, DM 1360. ISBN 3-540-93493-6.

This is the twenty-second volume of the Gmelin Handbook dealing with the chemistry of "Uranium" (System No. 55) to appear since the main volume was published in 1936, and it completes Part D, which deals with the chemistry of uranium in solution. This volume describes the physical properties of uranium in solution (including density, compressibility, surface tension, diffusion coefficients, activity and osmotic coefficients, vapour pressure, thermodynamics and heat capacities), the electrochemical properties of uranium in solution (including redox potentials, polarography and voltammetry, conductivity, and transfer numbers), the chemical reactions of uranium in solution (including stability of uranium oxidation states, hydrolysis, complexes of uranium with inorganic and organic ligands, oxidation—reduction reactions, and reactions involving the coprecipitation of uranium), and uranium in molten salts and metals (including uranium in solution in halide melts, in melts of oxoacids, and the solubility and thermodynamic properties of uranium in molten metals). There is, at first sight, little in this volume of coordination chemistry to interest the organometallic chemist. However, the section describing the complex chemistry of uranium in solution includes complexes of uranium with a range of organic ligands (including carboxylic acids {see also Vol. C13, 1983}, amino acids and ketones), and the section dealing with the stability of the oxidation states of uranium and their tendency to disproportionation is of general interest.

This volume is of the expected high standard for this definitive series of books, and the nine authors have performed an impressive task of collating the literature upto the end of 1980. However, even for the Gmelin series, this volume is expensive, and it will find a place only on the shelves of libraries of institutions directly and intimately involved in uranium research.

School of Chemistry and Molecular Sciences,
University of Sussex, Brighton BN1 9QJ (Great Britain)

KENNETH R. SEDDON