

Book review

Gmelin handbook of inorganic chemistry, 8th Edition. *U — Uranium, Supplement Volume C13: Carbonates, Cyanides, Alkoxides, Carboxylates, Compounds with Silicon*, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1983, xvii + 388 pages, DM 1297. ISBN 3-540-93480-4.

This is the twenty-first volume of the Gmelin Handbook dealing with the chemistry of "Uranium" (System No. 55) to appear since the main volume was published in 1936: its aim is to terminate the coverage of the compounds of uranium with carbon (which is to be initiated in Vol. C12 with the coverage of uranium carbides and related compounds) and to provide complete coverage of the compounds of uranium with silicon. However, as the authors (K.W. Bagnall, E. Jacob and P.E. Potter) and editor (C. Keller) take pains to emphasise, the coverage of this particular Volume (which is published in English) is interactive with those dealing with spectra (Vol. A5, 1982), general properties (Vol. A6, 1983), chemistry in solution (Vols. D1–D4, 1982–1984) and coordination compounds, including organouranium compounds (Vols. E1–E2, 1979–1980). Under the heading of compounds with carbon, the new volume specifically describes uranium carbonates and carbonato complexes (including many of the uranium minerals, such as rutherfordine, joliotite, liebigite and schroeckingerite), uranium cyanides and cyano complexes, uranium cyanates and cyanato complexes, dioxouranium(VI) hydrazidocarbonate, uranium thiocyanates and thio-cyanato complexes, uranium selenocyanates, uranium alkyl (aryl) oxides and alkane (arene) di- and poly-olates (i.e. alkoxide and phenoxide derivatives, and related diolate compounds), uranium carboxylates, uranium thiolates and dithiolates, uranium thiocarboxylates, uranium oxothio- and dithio-carbamates, uranium *N,N*-diethyldiselenocarbonates, and compounds with 2,2'-bipyridine. Under the heading of compounds with silicon, binary silicides, ternary silicides, the $\text{UO}_2\text{--SiO}_2$ system and the uranium silicates, and uranium trialkylsilyloxides are described. Perhaps not surprisingly, almost two-thirds of this volume is devoted to the two important areas of uranium carboxylate and uranium alkoxide (and phenoxide) chemistry, and accessing the material in these large sections is made especially easy by the inclusion of a helpful index of acids and alcohols, in which these ligands are listed, with appropriate page references, by empirical formulae. The incorporation of this useful appendix adds significantly to the value of the book.

The literature closing date for the volume is 1981, although more recent data have been included selectively. The material is presented in a clear, comprehensive and scholarly manner, and the authors are to be congratulated for producing a tour de force: a volume which will become the standard reference work in this expanding field of coordination and organometallic chemistry. This work is essential for all libraries attached to academic and atomic energy research institutions, but its high cost will unfortunately exclude it from the shelves of most individuals.