

Book review

Gmelin handbook of inorganic chemistry, 8th Edition. *U — Uranium, Supplement Volume C10: Compounds with Sulphur*, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1984, xviii + 233 pages, DM831. ISBN 3-540-93503-7.

This is the twenty-third volume of the Gmelin Handbook dealing with the chemistry of "Uranium" (System No. 55) to appear since the main volume was published in 1936: it comprehensively describes the compounds which uranium forms with sulphur and its oxoacids, but does not describe (as its title might ambiguously suggest) the chemistry of uranium with *S*-donor ligands (which is to be found admirably described in Supplement Volumes E1 and E2). Explicitly, the compounds described include the binary uranium sulphides (US, U₂S₃, U₃S₅, US₂, U₂S₅ and US₃), the ternary uranium oxide sulphides (UOS, UO₂S and UO₂·2US₂), the ternary uranium nitride sulphides (e.g. U₂N₂S), the ternary uranium silicon sulphides (USiS and USi_xS_{1-x}), the ternary compounds of uranium sulphides with other metals such as potassium, Group IIA, the lanthanides, zirconium, thorium, germanium, lead and the 3*d* transition metals (e.g. MUS_{*n*} {M = K, Ca, Sr or Ba; *n* = 2 or 3}, MU₂S₅ {M = Ln, Th or Pb}, Ln₂US₅, Ln₄U₅S₁₆, UGeS, U₂NiS₄, MUS₃, MU₂S₅ and MU₈S₁₇ {M = Ti–Ni}), quaternary uranium sulphide systems (e.g. KUOS, K₂U₂O₂S₃, K₂U₂O₂S₅ and LnThUS₅), uranium sulphite compounds, uranium sulphate compounds (e.g. U₂(SO₄)₃, U(SO₄)₂ and UO₂SO₄, and their many hydrates), uranium sulphato complexes, uranium thiosulphates, uranium fluorosulphates, uranium chlorosulphates, uranium methanesulphonates, uranium trifluoromethylsulphonates and uranium amidosulphates.

The authors (David Brown and Horst Wedemeyer) have performed an admirable feat in producing this volume, which comprehensively covers references up to mid-1983. As would be expected from the scope of this volume, there is little material included which is of direct interest to the organometallic chemist. However, as part of this rapidly growing set of books (seventeen volumes on uranium chemistry have been published since 1980), this volume fills a crucial niche. Its utility is enhanced by the first class quality of the many illustrations, and by an imaginative use of tabular material. The price of the volume is on a par with other recent volumes of the Gmelin Handbook, but it should be on the shelves of any library attached to an inorganic chemistry department or atomic research laboratory.