

## U(V) AND U(VI) FLUORIDE CHEMISTRY. PREPARATION AND CHARACTERIZATION OF SOME NEW DERIVATIVES

K. Rediess and R. Bougon\*

CEA, Centre d'Etudes Nucléaires de Saclay, Gif-sur-Yvette (France)

The reaction of SF<sub>4</sub> and SOF<sub>4</sub> with uranium fluorides and oxyfluorides, and the fluoride ion donor properties of these sulfur species towards UF<sub>5</sub> have been investigated. New adducts of marginal stability have been obtained, and ionic species in solution as well as in the solid products have been observed.

Results concerning the reactions of solutions of UF<sub>6</sub> and UOF<sub>4</sub> in the HF/AsF<sub>5</sub> system are given. UOF<sub>4</sub> forms an intermediate unstable arsenic pentafluoride adduct. In this medium the products of decomposition are UF<sub>6</sub>, uranyl species and OH<sub>3</sub><sup>+</sup>. The adduct of UF<sub>5</sub> with AsF<sub>5</sub> was characterized at low temperature and a new solid adduct was obtained from UO<sub>2</sub>F<sub>2</sub> and AsF<sub>5</sub>.

The formation of the non-hydrolyzing<sup>[1]</sup> oxonium ion, already evidenced<sup>[2]</sup> in the UOF<sub>4</sub>/SbF<sub>5</sub>/HF system will be discussed, and a reaction model accounting for these observations will be proposed. From other experiments it is concluded that this type of reaction is also involved in the fluorination of oxyfluorides and oxo-compounds.

1 K.O. Christe et al. Inorg. Chem. 14 (1975), 2224.

2 J.H. Holloway et al. J. Chem. Soc. Dalton Trans. (1982), 1635.