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SOME STUDIES ON URANIUM(V) COMPLEXES

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The attempted preparations of $UCl_xF_{5-x} \cdot 2Tppo$ type complexes have yielded some new complexes of unexpected composition which have been characterised by X-ray crystallography. The addition of two equivalents of solid Tppo to a solution of UF_5 in purified CH_3CN at room temperature was expected to yield $UF_5 \cdot 2Tppo$. An X-ray structure determination on a single crystal obtained from the products showed the presence of a salt, $[(UF_3 \cdot 3Tppo)_2]^{2+} 2[UF_6]^-$ containing a novel dimeric cation. Addition of stoichiometric quantities of Me_3SiCl to bulk product from the ' $UF_5 \cdot 2Tppo$ ' reaction in dry CH_3CN at room temperature in a 2:1 and 5:1 stoichiometry resulted in the formation of cis- and trans- $UO_2Cl_2 \cdot 2Tppo$ respectively.

(Tppo = triphenylphosphine oxide)