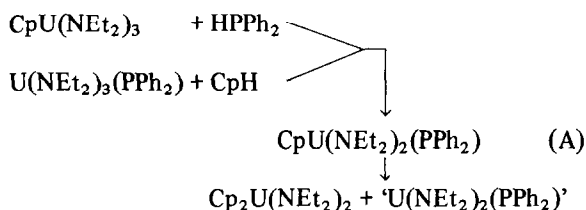


b) $\text{CpU}(\text{NEt}_2)_3$ reacts with HPPH_2 giving rise to an unstable intermediate (A) containing both $-\text{NEt}_2$ and $-\text{PPh}_2$ groups, which rearranges immediately to $\text{Cp}_2\text{U}(\text{NEt}_2)_2$.

By considering the hypothesis (a) the reaction mixture should contain $\text{Cp}_2\text{U}(\text{NEt}_2)_2$ and $\text{U}(\text{NEt}_2)_4$ in the presence of HPPH_2 . As we reported, $\text{Cp}_2\text{U}(\text{NEt}_2)_2$ reacts with HPPH_2 to produce Cp_3UPPh_2 and in addition we observed that $\text{U}(\text{NEt}_2)_4$ and HPPH_2 (in molar ratio 1:1) quantitatively afford $\text{U}(\text{NEt}_2)_3(\text{PPh}_2)$ [9]; the lack of the Cp_3UPPh_2 and $\text{U}(\text{NEt}_2)_3(\text{PPh}_2)$ in the reaction mixture suggests that the hypothesis (a) has to be excluded while the (b) one seems to be acceptable.

On the other hand, the reaction of $\text{U}(\text{NEt}_2)_3(\text{PPh}_2)$ and cyclopentadiene in the molar ratio 1:1 produces the same reaction mixture as previously observed for the reactions between $\text{CpU}(\text{NEt}_2)_3$ and HPPH_2 , making realistic the hypothesis (b) concerning the rearrangement of an unstable intermediate (A):



Analogous studies on reactivity of the corresponding thorium amides are in progress.

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A26

Preparation and Properties of Hydrated Uranium Trichlorides

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The preparation of the hydrated uranium trichlorides: $\text{UCl}_3 \cdot 7\text{H}_2\text{O}$, $\text{UCl}_3 \cdot 4\text{H}_2\text{O}$, $\text{UCl}_3 \cdot 3\text{H}_2\text{O}$ and $\text{UCl}_3 \cdot 2\text{H}_2\text{O}$ as well as some of their structural, spectroscopic and magnetic properties are reported.

The compounds were prepared by means of a general method presented in Ref. 1. The navy blue heptahydrate and the purple tetrahydrate could be directly obtained from solutions, whereas the remaining hydrates have been obtained by a controlled vacuum thermal dehydration. The compounds are relatively stable towards oxygen but are readily oxidized in presence of moisture. Vacuum dehydration at 600–700 K gives the anhydrous chloride. The composition of the hydrates has also been confirmed by a thermogravimetric analysis.

The solution and solid state spectra of the compounds are discussed. The heptahydrate exhibits an absorption spectrum almost identical with that of the aqueous ion. The less hydrated compounds show an intense absorption at about 18000 cm^{-1} which is characteristic for uranium(III) complex chlorides.

Magnetic susceptibilities of polycrystalline samples were measured by the Faraday method in the 6.5–295 K range. The uranium trichloride heptahydrate follows in this region the Curie–Weiss law with $C = 1.0839 \text{ emu K mol}^{-1}$ and $\theta = -32.72 \text{ K}$.

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