E2-42: Interaction of $Cp^{\pm}_2UCl_2$ with sulfilimine hydrate

K A N S Ariyaratne
(Dept of Chemistry, Univ *of Hawaii,*
Dept of Chemistry, Univ of Peradeniya)

Hydrolysis of organo transition metal halides has been an effective way of synthesizing organo transition metal oxo complexes. In contrast, the direct hydrolysis of organo uranium halides for the synthesis of organo uranium oxo species has not been successful.

$Cp^{\pm}_2UCl_2$ reacts with sulfilimine monohydrate $HNSPh_2$ H_2O, to form an intermediate $Cp^{\pm}_2UCl(OH)(HNSPh_2)$, which further reacts with excess sulfilimine hydrate to form the final product, $[Cp^{\pm}(Cl)(HNSP_2)U\text{-}(\mu_3\text{-}OH)(\mu_2\text{-}O)_2\text{-}U(Cl)(HNSPh_2)_2]_2$.

They are the first orange actinide hydroxy complexes to be structurally characterized. According to their ^1H-NMR spectra, both complexes are paramagnetic. These results indicate that both the $Cp^{\pm}$ and Cl ligands undergo hydrolysis at a comparable rate. However the reproducibility and the convenience of their synthesis provide a new method for synthesizing oxo complexes of f-block elements.