in detail to serve as a base for comparison with the complexation of some biologically active catechols.

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Stabilization of Novel Organouranium Compounds by the Bulky 1,3-Bis(trimethylsilyl)cyclopentadienyl Ligand

WILLIAM E. HUNTER* and JERRY L. ATWOOD

Department of Chemistry, University of Alabama, University, Ala. 35486, U.S.A.

The development and utilization of the 1,3-bis-(trimethylsilyl)cyclopentadienyl ligand (referred to as Cp'') by Professor M. F. Lappert has resulted in the preparation, isolation and X-ray characterization of several novel organolanthanide and -actinide compounds. This presentation will report the results of our X-ray structural studies of the following organouranium compounds: Cp''_2UCl_2 (I), $Cp''_2U(BH_4)_2$ (II), and $Cp''_2U(OAr)_2$ (III) where OAr = 2,5-dimethylphenoxide.

Compound (I) crystallizes in the monoclinic space group C2/c with unit cell parameters a = 27.037(9), b = 7.084(3), c = 22.327(9) Å, and β = 131.83(4)°. Final agreement factors of R = 0.020 and R_w = 0.026 were obtained for 1701 observed reflections. The uranium atom resides on a crystallographic two-fold axis. The only unique U–Cl bond length is 2.579(2) Å. The average U–C distance is 2.72(1) Å.

Compound (II) crystallizes in the monoclinic space group C2/c with unit cell parameters a = 27.731(9), b = 7.138(4), c = 22.561(9) Å, and β = 132.45(5)°. The final R factor was 0.026 for 1199 observed reflections. (II) is isostructural with (I). The BH_4^- is coordinated to the uranium atom in a tridentate fashion. The U–H bond lengths are in the range of 2.37–2.42 Å.

Compound (III) crystallizes in the triclinic space group $P\bar{1}$ with unit cell parameters a = 10.236(5), b = 10.830(6), c = 19.767(7) Å, α = 90.25(4), β = 92.20(4), and γ = 103.09(6)°. The final agreement factor was 0.039 for 4518 observed reflections. The U–O bond distances are 2.12(6) and 2.109(6) Å.

A detailed discussion of the crystal and molecular structure of the above compounds will be presented and comparisons made with other organoactinide compounds already in the literature.