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Uranium: The problem, or the solution?

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Uranium is of great importance as a nuclear fuel and is used to generate electrical power, produce isotopes, and to make weapons. The possibility of developing a realistic flow scheme for nuclear fuel reprocessing or separation for segregation is one that the Chemistry Department at MU consistently looks into. One way to better optimize waste extraction is to possibly bind two separate functional groups to uranyl(VI) [UO22+] so that the reactions will occur selectively. The product of interest is a mixed uranyl iodide/amide and is a novel uranium compound generated for further study. This is accomplished with the following reactions. UO3 --TfOTf--- UO2(OTf)2 UO2I2(THF)3 + 2KOTfUO2(OTf)2 + 2KI ---THF---- UO2I[N(SiMe3)] + KIUO2I2(THF)3 + K[N(SiMe3)3] ----THF- After completing the reactions under an inert atmosphere, an orange product formed. The next step in this research requires NMR analysis and X-Ray crystallography to determine if this product is the target molecule desired.