CALCULATION OF THE EQUILIBRIUM CONSTANTS OF U(IV)-U(VI) ELECTRON EXCHANGE REACTIONS FROM ISOTOPE SHIFTS OF TRIALKYL PHOSPHATE SOLID CHLORO COMPLEXES MEASURED BY I. R. SPECTRA

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ABSTRACT

The isotope frequency shifts of the uranous and uranyl chloro solid complexes with three kind of trialkyl phosphate (TMP, TEP, TBP) are measured by I. R. spectrometry. The isotope shifts of uranyl chloro solid complexes are 0.87—1.18 cm^{-1} and the value from theoretical calculation is 0.70 cm^{-1}. The isotope shifts of uranous complexes are 0.05—0.18 cm^{-1}, and the calculated value is 0.16 cm^{-1}.

From the above data the equilibrium constants of the U(Ⅳ)-U(Ⅵ) electron exchange reactions are obtained in the range of 1.0013—1.0018 for these systems.

The influence of the donor ligands on the effect of isotope shift is discussed.

Key Words TMP, TEP, TBP, Isotope shifts, U(Ⅳ)-U(Ⅵ) electron exchange reactions, Reduced partion function ratio, I. R. spectra, Equilibrium constants.

国际会议消息

美国核学会同位素和辐射分会与美国化学会核化学和工艺分会将于1987年4月5至10日在夏威夷Kona城联合召开“International Conference on Methods and Applications of Radioanalytical Chemistry”。会议内容包括：仪器与放射化学活化分析；核径迹技术；放射化学分离技术；放射性示踪方法；铀钚分析；在线与自动化非破坏性分析；γ射线与X射线光谱；以及与环境、生物医学和能源有关问题方面的应用。会议目的是促进美国与太平洋地区在此领域中的科学家之间的学术交流。本刊将在今后继续报道有关这个国际会议的消息。