ISSN: 01934929
Document Type: Article
Source Type: Journal

Reviews in Inorganic Chemistry

Volume 29, Issue 3, 2009, Pages 203-214

Comparison of the Debye-Huckel and specific ion interaction theories for the W(VI) + EDTA complex

Majlesi, K.[a], Zare, K.[a b], Lari, F.F.[c]

[a] Chemistry Department, Islamic Azad University, Science and Research Campus, Tehran, Hesarak, Iran
[b] Chemistry Department, Shahid Beheshti University, Tehran, Evin, Iran
[c] Chemistry Department, Islamic Azad University, Firouzabad Branch, Firouzabad, Iran

Abstract

The solution equilibria of the tungsten(VI) complex with ethylenediaminetetraacetic acid (EDTA) have been studied by a combination of Uv-Vis spectrophotometric and potentiometric techniques. Comparison of the ionic strength effect on this complex formation reaction has been made using a Debye-Huckel type equation and Bronsted-Guggenheim-Scatchard specific ion interaction theory(SIT). Debye-Huckel theory predicts the first order effects in simple electrolyte solutions. Interactions between the reacting species and the ionic medium are taken into account in the SIT model. All of the calculations have been done by the computer program Excel 2000. The measurements have been done at 25 °C and different ionic strengths ranging from (0.1 to 0.7) mol dm $^{-3}$ of $NaC10_4$, with pH fixed at 7.5.

Language of Original Document

English