

عنوان مقاله:

A Thermodynamic Study Between Kryptofix5 with Hg^{2+} and La^{3+} Cations in Acetonitrile – Methanol , Acetonitrile – Methyl acetate and Acetonitrile – Tetrahydrofuran Binary Mixtures Using The Conductometric Method

محل انتشار:

دومین همایش ملی نفت، گاز و پتروشیمی (سال: 1391)

تعداد صفحات اصل مقاله: 6

نویسندگان:

S Akbari - Department of Chemistry, Mashhad Branch, Islamic Azad University, Mashhad, Iran

G.H Rounaghi

A.H Ebrahimitalab

M Fakhri

خلاصه مقاله:

The complexation reaction between mercury (II) and lanthanum (III) Cations with macrocyclic ligand, 1,13-bis(8-quinolyl)-1,4,7,10,13-entaoxatridecane (Kryptofix5) was studied at different temperatures in acetonitrile–methanol (AN/MeOH), acetonitrile–methyl acetate (AN/MeOAc) and acetonitrile– tetrahydrofuran (AN/THF) binary mixtures using the conductometric method. The results show that in most cases, the stoichiometry of the complex is 1:1 (ML). The values of formation constant of the complex which were determined using conductometric data, show that the stability of (Kryptofix5. Hg^{2+}) complex in pure solvents at 25°C changes in the following order: MeOAc AN MeOH THF and in the case of binary mixed solutions at 25°C it follows the order: AN– MeOAc AN– MeOH AN–THF and the stability of (Kryptofix5. La^{3+}) complex in pure solvents at 25 °C changes in the following order: AN THF MeOAc MeOH and in the case of binary mixed solutions, it follows the order: AN–THF AN–MeOAc AN–MeOH. The values of standard thermodynamic quantities (ΔH° and ΔS°) for formation of (Kryptofix5. Hg^{2+}) and (Kryptofix5. La^{3+}) complexes were obtained from temperature dependence of the formation constant using the Van't Hoff plots. The results show that in most cases, the complex is entropy and enthalpy stabilized and these parameters are influenced by the nature and composition of the mixed solvents. In most cases, a non-linear behavior was observed for variation of $\log K_f$ of the complex versus the composition of the binary mixed solvents. In all cases, an enthalpy–entropy compensation effect was observed for formation of (Kryptofix5. Hg^{2+}) and (Kryptofix5. La^{3+}) complex in the binary mixed solvents.

کلمات کلیدی:

Hg^{2+} and La^{3+} Cations, Acetonitrile–Methanol, Acetonitrile-Methyl acetate, Acetonitrile-Tetrahydrofuran, Conductometry, Kryptofix5

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/202315>



