

## N,N-二异丙基丁酰胺与1-苯基3-甲基4-苯甲酰基吡唑啉酮5-协萃硝酸铀酰机理

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**摘要** 该文研究了N,N-二异丙基丁酰胺(DIPBA)在4 mol/l硝酸底液中萃取 U(VI)的机理和pH=1.5左右与1-苯基3-甲基4-苯甲酰基吡唑啉酮-5(HPMBP)有明显的二元异类协同效应。并测定了萃合物的组成及平衡常数和热力学函数。

**关键词** [DIPBA](#) [HPMBP](#) [硝酸铀酰](#) [协萃](#)

分类号

## SYNERGISTIC EXTRACTION OF URANYL NITRATE BY THE BINARY SYSTEM OF N, N DI-ISOPROPYL BUTYLAMIDE AND HPMBP

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**Abstract** N, N Dialkyl substituted alkyl amide has been used as a extractant recently. Cheeper cost, stability, better decontamination of uranium from some fission products, higher separative coefficient of uranium-thorium and less-deleterious degradation products make it more useful in some extraction systems. In this work, at higher nitrate ion concentration, the extraction of uranium and at lower nitrate ion concentration the binary synergistic extraction of uranium by using DIPBA and HPMBP respectively were investigated. At higher nitrate ion concentration, the extractive equilibrium constant of N,N-DIPBA was determined to be  $\text{Log}\beta_{(10)} = -0.27$ . By determining the effect of temperature on the distribution ratio,  $\Delta G^\circ$ ,  $\Delta H$  and  $\Delta S^\circ$  of the individual reaction were evaluated as follows:  $\Delta G^\circ = -1.72 \text{ kJ/mol}$ ;  $\Delta H = -16.2 \text{ kJ/mol}$ ;  $\Delta S^\circ = -60 \text{ J/Kmol}$ . At pH=1.5, DIPBA and HPMBP have synergistic effect. The formation of binary extracted complex,  $\text{UO}_2(\text{HPMBP})_2$ , DIPBA, was confirmed by the usual slope method. The equilibrium constant  $\text{Log}\beta_{(12)} = 4.51$ , and the effect of temperature  $\Delta S^\circ_{(12)} = -14.4 \text{ J/Kmol}$  were determined.

**Key words** [Uranyl nitrate](#) [DIPBA](#) [HPMBP](#) [Synergistic extraction](#)

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