

冠醚萃取氯化铀(IV)的研究

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摘要 本文研究了盐酸介质中多种不同结构冠醚对四价铀的萃取并求得分配比值。结果表明在以1,2-二氯乙烷为溶剂时二环己基系列冠醚萃取铀(IV)最好,且当水相酸度为 8.0—8.5 M时分配比最大,其萃取能力依次为 DC H-27-C-9>DCH-24-C-8>DCH-18-C-6>>DCH-30-C-10>DCH-21-C-7。用斜率法及等摩尔系列法证明,铀(IV)与五种二环己基冠醚萃取物的组成皆为1:2。本文还对萃取机理作了初步探讨。

关键词 [冠醚](#) [冠醚络合物](#) [氯化铀\(IV\)](#) [萃取](#)

分类号

THE STUDY OF THE EXTRACTION OF URANIUM(IV) CHLORIDE WITH CROWN ETHERS

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Abstract In this paper, results are reported on the extraction behaviors of uranium (IV) by 31 kinds of crown ethers with various substituting groups from hydrochloric acid solutions. Results indicate that DCH's (dicyclohexyl-crown ethers) in 1,2-dichloroethane provide best extraction of uranium (IV). The effects of the concentrations of DCH, U (IV) and HCl in both phases on the extraction are also studied. It is found that U (IV) is not extracted in 5.0 M HCl by DCH, but the distribution coefficients of U (IV) increase rapidly when HCl concentration is increased to 8.0--8.5M. Using the slope method and the method of isomolar series, the extracted species are identified as $H_2UCl_6 \cdot 2DCH$. The extraction capacities of five DCH's for uranium decrease in the order: DCH-27C_9, DCH--24C8, DCH--18C6, DCH--30C10, DCH--21C7. Experimental results indicate that the extraction reaction is as follows: $U^{(4+)} + 2H^{++} + 6Cl^{-} + 2DCH = H_2UCl_6 \cdot 2DCH$

Key words [Crown ether](#) [Crown ether complex](#) [Extraction of uranium \(IV\) chloride](#)

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