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溶剂萃取分离-α计数法分析钚的价态

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摘要 用0.1mol/l D_2EHPA-5%TIOA-二甲苯从1.5mol/l硝酸中萃取Pu(IV)和Pu(VI),Pu(Ⅲ)留在水相。用0.1mol/l草酸将Pu(IV)反萃,Pu(VI)留在有机相。将分开的不同价态的钚定量取样、制源后进行α计数测量,便分析出它们在原样中的浓度。当源盘中钚量达1.5μg时,相对标准偏差为±4%。该方法与恒电位库仑法的相对偏差约为2%。

关键词 钚 价态 溶剂萃取分离 测定

分类号

THE ANALYSIS OF THE VALENCY STATE OF PLUTONIUM BY SOLVENT EXTRACTION SEPARATION AND ALPHA COUNTING

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Abstract Plutonium (Ⅵ) and plutonium (Ⅳ) in 1.5 mol/l nitric acid are extracted by0.1 mol/l D_2EHPA--5%TIOA-dimethyl benzene, plutonium (Ⅲ) remains in theaqueous phase. Extracted Pu (Ⅳ) can be stripped by 0.1 mol/l oxalic acid whilePu(Ⅵ) is still in the organic phase. After sampling the separated plutonium speciesand making them into sources, alpha counting is carried out and the concentrationof them are calculated. When the amount of plutonium in a source plate is as highas 1.5μg, the relative standard deviation is ±4%. The relative deviation of thismethod from controlled--potential coulometry is about 2%.

Key words Plutonium Valency state Solvent extraction separation Determination

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