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动力堆辐照元件中钕、钐、钷、钕的高效液相色谱法同时分离

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摘要 文章叙述了吸附柱和分离柱的长度和直径、淋洗液的流速、样品的负载量及α-羟基异丁酸淋洗溶液的pH值等对高效液相色谱法同时分离Eu,Sm,Pm,Nd的影响,确定了分离条件,推荐了分离程序。用推荐的程序分析的全过程(包括样品溶解及预分离)的Nd空白本底为(2.5±0.5)×10~(-8)g。实际辐照元件样品的分析证明推荐程序是可行的。

关键词 高效液相色谱 钕 钐 钷 钕 α-羟基异丁酸

分类号

THE SEPARATION OF Eu,Sm,Pm AND Nd IN THE SPENT FUEL WITH HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

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Abstract The effect of the length and diameter of the absorbing column and the sepa-rating column packed with cation exchanger, the flow rate of the eluate, the load-ing of the samples (Eu, Sm, and Nd) and the pH values of the eluate of α-HIBAon the separation of Eu, Sm, Pm and Nd in the spent fuel are studied usingHPLC. A procedure for the separation using the best separation conditions is re-commended, The blank of Nd is (2.5±0.5)×10~(-8)g in the whole procedure whichstarts from dissolving fuel sample and ends in preparing Nd sample for mass sp-ectrometric measurement. The procedure is practical and gives good analytical re-sults as being verified by the mass spectrometric measurements of Nd and Sm andthe γ-spectrometry of ~(147)Pm and Eu.

Key words High performance liquid chromatography Eu Sm Pm Nd α-HIBA

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