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离子交换浓集-α谱仪测定水中U,Th和~(234)U/~(238)U,~(230)Th/~(232)Th

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摘要 研究了水中10~(-3)ppm级铀、钍在硫酸盐型D235和氢型D033大孔离子交换树脂上定量浓集的条件。被树脂吸附的铀和钍经洗脱后,分别用恒电流电镀,制备无自吸收U,Th α源,进行α谱仪测量。方法用于测定水中10~(-3)ppm级U和~(234)U/~(238)U时,精密度在±10%以内,Th和~(230)Th/~(232)Th精密度在±7%以内。

关键词 U Th 同位素比值 离子交换 电镀制源

分类号

DETERMINATION OF URANIUM, THORIUM AND ~(234)U/~(238)U, ~(230)Th/~(232)Th IN WATER BY MEANS OF IONEXCHANGE CONCENTRATION AND α-RAY SPECTROMETRY

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Abstract The condition of quantitative adsorption of 10~(-3) ppm level U and Th in wa-ter by sulfate form D235 and hydrogen form DO33 macroporous ion-exchangeresin is studied. The U and Th are adsorpted and then eluted with water and 8%(NH_4)_2CO_3-0.2K NH_3.H_2O solution respectively. Non self-adsorptive U, Th α-sources are prepared by constant current electrodeposition. The a activety of sour-ces are determinated with α-ray spectrometer. The method is used to determine10~(-3) ppm level U, Th and ~(234)U/~(238)U,~(230)Th/~(232)Th in water with precision of±10%and±7% for U~(234)U/~(238)U and~(230)Th/~(232)Th respectively.

Key words U Th Isotope ratio Ion-exchange Electrodeposition make source

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通讯作者