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Determination of Uranium in Aqueous Samples by Photon-Electron Rejecting Alpha Liquid-Scintillation (PERALS[®]) Spectrometry

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Abstract

A method for measuring uranium isotopes in water samples by selective and quantitative extraction by URAEX[™] and alpha counting by PERALS[®] spectrometer has been studied. The extraction efficiency of the system was evaluated under varying chemical conditions including pH, and sample-cocktail volume ratio. Isotopic information from the PERALS[®] spectrum of natural uranium was obtained using a curve fitting routine. Comparisons of the result with that obtained from alpha spectrometry methods using ion implanted silicon detector showed good agreement.