Preconcentration of Plutonium and Americium Using the Actinide E-CU™ Resin for Human Tissue Analysis

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A method for the preconcentration of Am and Pu from human tissue solutions (liver, lung, bone etc) using the Actinide-CU Resin (ElChroM Industries) has been developed for their alpha spectrometric determination. With near 100% recoveries were obtained by preconcentration, subsequent decomposition methods for eluent were developed. Good agreement for Pu and Am determination with the USTUR anion exchange/solvent extraction method was demonstrated using previously analyzed human tissue solutions and NIST SRMs. The advantages of the preconcentration method applied to human tissue analysis are simplicity of operation, shorter analysis time compared to anion exchange/solvent extraction methods, and capacity to analyze large tissue samples (up to 15g bone ash per analysis and 500 g soft tissue).

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