

Americium (²⁴¹Am) by Alpha Spectrometry

Solids

An aliquot of the solid sample is digested in a mixture of mineral acids.

Americium is isolated from the resulting solution by ion-exchange chromatography and extraction chromatography. Americium is electrodeposited onto a stainless-steel disc, which is then measured by alpha spectrometry. Americium-243 is used as an internal standard for the procedure.

For soils, sediments, geological materials and concretes, to assist in the removal of interfering rare earth elements two additional ion-exchange steps are implemented prior to electrodeposition.

Liquids

Americium is pre-concentrated by evaporation or co-precipitation. The resulting solid material is dissolved in a mineral acid.

Americium is isolated from the resulting solution by ion-exchange chromatography and extraction chromatography. Americium is electrodeposited onto a stainless-steel disc, which is then measured by alpha spectrometry. Americium-243 is used as an internal standard for the procedure.