

## Curium and californium isotopes ( $^{243+244}\text{Cm}$ , $^{242}\text{Cm}+^{250+252}\text{Cf}$ ) by Alpha Spectrometry

### Solids

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

Curium/californium is isolated from the resulting solution by ion-exchange chromatography and extraction chromatography. Curium/californium is then electrodeposited onto a stainless-steel disc, which is then measured by alpha spectrometry. Americium-243 is used as an internal standard for the procedure and it is assumed that curium and californium follow similar chemistry to americium in 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

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

Curium/californium is isolated from the resulting solution by ion-exchange chromatography and extraction chromatography. Curium/californium 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 and it is assumed that curium and californium follow similar chemistry to americium in the procedure.