

Strontium-90

Water

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

Solids

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

Strontium is separated from the sample solution by ion-exchange followed by extraction chromatography using a commercially available strontium specific resin. The strontium-90 in the purified fraction is determined by liquid scintillation counting after the in-growth of yttrium-90 to secular equilibrium. Strontium-90 (in equilibrium with yttrium-90) of known activity concentration is used to determine the counting efficiency. The chemical recovery is found by measuring strontium before and after chemical separation.

Note: there is a four-week delay implicit in the method to obtain whilst Y-90 grows into equilibrium.