

New method for antimony isotope analysis

YANG FANG

Northwest University

Presenting Author: fangy_IG@163.com

Antimony is a toxic element in the environment and has long been concerned by environmental geochemistry researchers. Since Rouxel reported the study of Sb isotope in 2003, few studies on antimony isotope have been reported. Previous studies have shown that Sb isotope fractionation occurs in the process of oxidation and reduction, adsorption and desorption, biological action, and evaporation and condensation, respectively, with the values of 0.9‰, 0.41‰, 1.9‰ and 0.5‰. Thus, Sb isotope systematics may be a useful tool for tracing redox processes, pollution sources and biogeochemical processes in riverine and oceanic systems.

In general, there are two types of Sb separation methods, a two-step procedure for complex matrices and a single-step procedure for simple matrices. For both, reduction is required. Major drawbacks of these methods are (1) extended processing times caused by reduction process, overload of cation resin and low flow rate when using large amount of resin; (2) uncomplete Sb recovery for geological and environmental samples.

A new method for the separation and analysis of antimony isotope had been established. The recovery of column process is more than 96.47%, with a long-term precise better than 0.05‰.