

## **Sn isotope analysis of cassiterite from South Korea using MC-ICP-MS**

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Cassiterite is the main ore mineral of tin, and the isotopic composition of tin in the mineral can provide information on the geological processes that led to the formation of the deposit. The fractionation of Sn isotope is increasing interest in various fields. This study aimed to perform a precise analysis of Sn isotopes in ore mineral of tin and compare them with Sn isotopes in ore minerals of tin from various countries in Northeast Asia.

We performed Sn isotope analysis on cassiterite from Wangpiri mine in south Korea. We established for the cassiterite decomposition and ion-exchange chromatography pretreatment to have high precision and accuracy for Sn isotope analysis. NIST SRM 3161a was used as a standard materials for Sn isotope analysis, and the correction of the mass bias is best performed with an internal Sb standard and an empirical regression method. Sn isotope analysis was performed with Nu Plasma II MC-ICP-MS in KBSI. We analyzed Sn isotopic composition such as  $^{124}\text{Sn}/^{118}\text{Sn}$ ,  $^{120}\text{Sn}/^{118}\text{Sn}$  and  $^{124}\text{Sn}/^{120}\text{Sn}$  of cassiterite from Wangpiri mine, and Sn isotope for reference materials(MESS-4, CRM667, BCR-2 and JG-3). The Sn isotopic composition of tin ore minerals in south Korea was compared with some countries in Northeast Asia to identify difference in Sn isotope discrimination by country.

Sn isotope analysis of cassiterite from South Korea using MC-ICP-MS is a powerful tool for investigating the geological history of the deposits and Sn isotopic composition can provide valuable information for environmental tracer of environmental substance and provenance of ancient metals.