

## **STABLE ISOTOPE AND TRACE ELEMENT STUDIES ON THE TALC-TREMOLITE ORE AND HOST ROCKS IN POONGJEON TALC DEPOSITS, SOUTH KOREA.**

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The geology of Poongjeon talc deposits consists of dolomitic limestone of Cambro-Ordovician Samtaesan Formation, amphibolite, Muamsa granite and basic dykes. The deposit occurs as the contact metasomatic or hydrothermal replacement type related to the intrusion of late Cretaceous granite in this area. The temperature and pressure of talc mineralization were estimated as 350° and 400 bar, respectively, based on the fluid inclusion study. Oxygen and hydrogen isotope values of the talc-tremolite fall within a range 12.2‰-12.9‰ and -60‰-85‰, respectively. This indicates that the hydrothermal fluid involved in talc-tremolite formation was of igneous origin. In case of post-Archean Australian shale-normalized REE (Rare Earth Element) patterns, the carbonate rock as well as talc-tremolite ore is characterized by low REE contents and a flat REE pattern with a negative Ce anomaly. The talc-tremolite ore shows counterclockwise rotation in relation to carbonate rock, which indicates the decrease of LREE/HREE ratio of talc-tremolite ore in comparison to the possible REE source, carbonate rock during remobilization. As for MORB(Mid-Oceanic Ridge Basalt)-normalized trace element patterns, amphibolites show relatively uniform patterns, while mobile elements for carbonate rock and talc-tremolite ore are highly disturbed. These results suggest that the carbonate rock may have played an important role in talc-tremolite formation as a host rock in the Poongjeon talc deposits.