

Partition of the platinum group elements between Cr spinels and whole rocks in boninites from Ogasawara islands

SENDA, Ryoko^{1*}

¹JAMSTEC

Abundance of the platinum group elements (PGEs) in volcanic rocks are expected to have some information about source mantle or magma genesis as other elements. Sulfides and Cr spinel are known to important host of PGEs, for example, enrichment of PGEs are reported in chromitites from layered intrusions, ophiolites and alpine-type peridotites (Ahmed and Arai, 2002, Buchl et al., 2004). Among volcanic rocks, however, Cr spinel can be observed in mafic-ultramafic magmas as komatiite and boninite. The correlation between whole rock Cr and PGEs in magmatic rocks are observed (Hamlyn et al., 1985), whether PGEs status in Cr spinels unresolved. Experimental studies on partitioning of PGEs between spinels and silicate melts are reported and showed significant amounts of IPGEs (Iridium-group PGE; Ru, Os, Ir) can be held in solid solution in spinel species as Cr spinels with high partition coefficient under oxidized conditions ($fO_2 > QFM + 2$). In empirical studies, the partitioning of Rh, Ru and Ir into Cr spinels increases with increasing oxygen fugacity are shown in komatiites by Jung-Woo et al. (2012). Here newly PGE data of Cr spinels and whole rocks from boninites Ogasawara and Guam islands are shown and have a discussion about PGE partitioning in boninite and tholeiite magma.

Keywords: platinum group element, boninite, partition