

Some characteristics of isochemical kelyphite in garnet peridotites, Czech Bohemia

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Isochemical kelyphite that is formed by isochemical breakdown of garnet has been known to occur in olivine-free mafic xenoliths such as garnet pyroxenites or granulites in volcanic rocks. We reported an occurrence of isochemical kelyphite (kelyphite II:Opx+Sp+Plagioclase) from garnet peridotite from Czech Bohemian Zone (Obata et al, Mineralogy and Petrology, 2013). This presentation illustrates some important petrographic characteristics and discuss their significance. It occurs within ordinary kelyphite (kelyphite I: Opx+Cpx+Sp), which indicates the formation of kelyphite I preceded kelyphite II. The characteristics of the Czech isochemical kelyphite (kelyphite II) are as follows. (1) kelyphite II is asymmetric, i.e., it develops only on one side of garnet. (2) mineralogical transition zones are defined between kelyphites I and II. (3) another thin hydrous kelyphite (kelyphite III: Amp+Sp+Pl) separates the kelyphite II and relict garnet. (4) while no topotaxial relationship is found between pyroxene and spinel in the kelyphite I, a good topotaxial relationship occurs in the middle of the kelyphite II. These are new features that have not been recognized from previous isochemical kelyphites (from xenoliths) and are considered to bear important information regarding the processes of transformation from kelyphite I to kelyphite II formations and they are expected to occur in other orogenic peridotites. A preliminary report of such isochemical kelyphite is also presented from the Ronda peridotite, Spain.

Keywords: kelyphite, symplectite, garnet peridotite, Czech, Bohemia