



Preliminary data on the Bramberg (Hassberge, Bavaria, Germany) mantle xenoliths

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Bramberg hill is a well preserved basaltic volcanic cone (494 m asl), situated 2 km north-west of Bramberg village (Hassberge, Bavaria, Germany). Bramberg basalt belongs to Heldburger Ganschar subset of the Central European Volcanic Province and contains 5 – 8 cm peridotitic xenoliths, which are the aim of our study, based on characterization of 7 xenoliths.

Two groups of spinel peridotite xenoliths occur in the Bramberg basalt. Group A spinel peridotite (6 xenoliths) is characterized by protogranular texture with typical grain size of 2 – 3 mm (max 8 mm). It consists of olivine (89.9 – 91.1 % Fo, 0.32 – 0.44 wt. % NiO), orthopyroxene (mg# 0.90 – 0.92, Al 0.10 – 0.18 a. pfu), clinopyroxene (mg# 0.90 – 0.92, Al 0.13 – 0.26 a pfu) and spinel (cr# 0.13 – 0.39, mg# 0.58 – 0.75). LA-ICP-MS trace element analyses (xenolith 3150) show that orthopyroxene is depleted relative to primitive mantle. Rare earth element patterns exhibit two trends. The first (U-shaped, LaN/YbN = 0.1) probably reflects orthopyroxene with thin clinopyroxene lamellae, while pure orthopyroxene is characterized by constant depletion from Lu to La (LaN/YbN = 1.1). In the primitive mantle normalized trace element diagram negative Ti, Hf, Sr anomalies occur. Clinopyroxene is enriched in trace elements relative primitive mantle. REE normalized diagram is characterized by constant enrichment from Lu to La (LaN/YbN = 10.7). Strong negative Ti, Hf, Nd and Pb anomalies occur in the trace element pattern.

The group B (1 xenolith) contains olivine of forsterite content 87.3 – 88.2 mole % and containing 0.35 – 0.39 wt. % NiO. Orthopyroxene is characterized by mg# 0.88 – 0.89 and variable content of Al 0.07 – 0.14 atoms pfu. Clinopyroxene (mg# 0.88 – 0.90) contains 0.10 – 0.26 atoms Al pfu. Spinel is characterized by low mg# (0.50 – 0.52) and high cr# (0.49) relative to group A xenoliths.

The group B xenolith is characterized by presence of carbonates. Carbonates (up to 0.5 mm grains) are located in interstices or in intergranular aggregates as a irregular, lobed or oval shaped grains, co-occur with minerals which originated due to pre-eruptive melt infiltration, sometimes form veins. Composition of carbonates is CaO 50.6 – 61.0 wt.%, MgO 2.1 – 10.6 wt.%, FeO 0.8 – 3.2 wt. %.