English Abstract

The Dunkelsteiner Wald granulite massif in Lower Austria belongs to the Gföhl unit of the Moldanubian zone of the Bohemian Massif. Predominant rocks are felsic granulites which in some places contain garnet pyroxenites and peridotites. There are positions of mafic and intermediate granulites on their intersection. Primary mineral association of mafic granulites is garnet, clinopyroxene rich on Jd and Ca-Tschermack component and kyanite. These rocks probably represent Ca-richer variant of pyroxenites. Contemporary mineral association is make by garnet, clinopyroxene, plagioclase and orthopyroxene. Accessory there is amphibole, spinel, rutile and Ilmenite in the rocks. Sapphire inclusion in garnet cores close to kyanite inclusions has been observed in several cases. Decompression of these rocks creates specific symplectite textures in mafic granulites characterized by plagioclase inclusions. These inclusions are partly or fully surrounded by garnet porphyroblasts on their edges and coarse grain symplectics of plagioclase and pyroxene in matrix. A possible explanation of emergence of this specific texture in rocks on intersection with felsic granulite is an infiltration of melt from felsic lithology. Proof can be the enrichment of K component on edges of plagioclase grains. On the other hand, there was limited amount of melt causing unperfect rock equilibration. Garnet zonality is characterized mostly by diffuse changes causes Fe and Mg enrichment and Ca exhaustion on their rims. However, plagioclase grains with garnet neighbors are Ca enrichment on their rims. Clinopyroxene grains in matrix contain orthopyroxene lamellas and they have higher content of Al and Na in cores. Towards grain edges share of these components decline. There are aggregates of plagioclase grains with high content of Ca (An > 90%) in matrix. In their cores is possible to find isolated grains of Cr rich spinel which most probably represents kyanite relics. Diffusion changes in garnets and clinopyroxenes are interpreted as a result of decompression and they are not affected by supply of components from felsic lithologies. Original mineral association of mafic granulites was created in eclogite facies in pressures exceeding 23-25 kbar and temperatures 900 °C. Next, the rocks undergo isothermal decompression to conditions of granulite facias up to pressure 9-11 kbar. The main mineral association of intermediate granulites is made by garnet, plagioclase, K-feldspar, quartz and orthopyroxene. Peak PT conditions of intermediate granulites reaches 12-18 kbar and 830-1050 ° C. Mineral association in equilibrated matrix of these rocks was formed in 900-950 ° C and 9-11 kbar.