

## *English abstract*

Felsic granulites in the Bohemian Massif are characterized by the presence of small (from decimetres to several hundred metres in size) boudins and lenses of garnet peridotites and high-pressure eclogites. Pressure conditions of the granulites and their mutual metamorphic history with garnet peridotites and eclogites are subject of long discussion. For this purpose, minerals and textures formed at peak pressure conditions were investigated using thin-sections and mineral separates of these rocks from the Kutná Hora complex. As all these rocks underwent granulite facies reequilibrium and subsequent cooling, most inclusions are transformed to lower pressure and temperature phases. In addition to olivine, orthopyroxene and clinopyroxene, garnet from garnet peridotites contains frequent chromium spinel. The host garnet around inclusions shows Cr-rich domains as result of diffusion from spinel to garnet. Rare ilmenite inclusions with high MgO content and pentlandite were also observed in garnet. Orthopyroxene in matrix and rims of large grains have low amounts of Al and the associated clinopyroxene has relatively high jadeite content. Two varieties of eclogites are present in the granulite: eclogites with pyroxenites and garnetites occur within or adjacent to garnet peridotites. Garnets of these eclogites contain oriented rutile needles. Apatite, often present in garnetite, is typical for the monazite exsolution lamellae. Eclogites without peridotites has prograde zoning garnet which contains inclusions of omphacite, kyanite, quartz and rutile. Inclusions of Ti-rich phengite were found in garnet from several samples of felsic granulites. It is mostly replaced by Ti-rich biotite with quartz and other Al-Si phases. In addition the inclusions of graphite with quartz, K-feldspar and calcite in garnets were found. Several polyphase inclusions and radial cracks around these inclusions in garnets were discovered.

The presence of spinel inclusions and the decrease of Al in orthopyroxene, associated with olivine, as well as increase of jadeite content in clinopyroxene in garnet peridotite from the Kutná Hora suggest increase of pressure and decrease of temperature during their metamorphic history. In addition to eclogite with prograde zoning garnet, a prograde PT path for the host granulite is considered for the presence of phengite inclusions in garnet. Graphite inclusions in garnets will be subject of further study to decipher, if the graphite is of fossil organic origin or it was formed by precipitation from CO<sub>2</sub> fluid.