# NATURE AND DISTRIBUTION OF SULPHIDE BLEBS IN UPPER MANTLE LHERZOLITE XENOLITHS OF ALKALI BASALTS IN THE CARPATHIAN–PANNONIAN REGION

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The main aim of this study is to give a comprehensive picture of the nature of sulphide blebs in petrologically and geochemically well described spinel lherzolite xenoliths hosted in the Plio–Pleistocene alkali basalts in the Carpathian–Pannonian Region. The petrologic and geochemical data of the xenoliths combined with new results obtained from the textural feature and phase chemistry of the sulphide blebs provide a better understanding of upper mantle processes and evolution of the mantle beneath the Carpathian–Pannonian Region (CPR).

Previous studies on upper mantle lherzolite xenoliths of the alkali basalts of the CPR (e.g. DOWNES *et al.*, 1992; VASELLI *et al.*, 1996) show that xenoliths represent the shallow sublithospheric mantle (40–60 km) of the region. Thereby, sulphide chemistry and distribution in the xenoliths are applicable for the whole mantle section represented by them.

More than 120 xenoliths were carefully examinated, searching for sulphide blebs coming from Graz Basin (GB) (Austria), Bakony–Balaton Highlands (BBH) (Hungary) and Persani Mts. (PM) (Transylvania, Romania). From the initial peridotite xenoliths only 20 xenoliths were found bearing sulphide.

The sulphide blebs are mostly spherical inclusions in primary mantle silicates (clinopyroxene >> orthopyroxene > olivine) but some occupy interstitial positions. The average size of the sulphides range from 10 to 100 μm. The sulphide blebs generally consist of 2–3 phases. The most common phase is Ni rich monosulphide solid solution (MSS), which occupies more than 60 % of the blebs. Chalcopyrite, occurring generally at the edge of the blebs, is also common in the polyphase sulphide inclusions. Mineralogically pure pentlandite is rare and is only present in some PM and one GB xenoliths. The bulk composition of the blebs is quite alike, mostly plot in the MSS field (Fe 30–45 %, Ni 10–20 %, with up to 10–15 % Cu) ranging towards the pentlandite field in the S-Fe-Ni system. We compared our data with conclusions of a previous study dealing with sulphide inclusions in xenoliths from the Nógrád–Gemer area (SZABÓ & BODNAR, 1995). No real territorial distribution has been observed. Thus, it seems that sulphide inclusions have close genetics in the whole region which is believed to be a partial melting event of the mantle.

References

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