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SULPHIDE AND Ba-Sr SULPHATE BLEBS IN CLINOPYROXENE MEGACRYSTS FROM NEOGENE ALKALI BASALTS (THE BAKONY-BALATON HIGHLAND, HUNGARY)

SZAKÁL, J.A., TÖRÖK, K., SZABÓ, Cs., GÁL-SÓLYMOS, K. (Eötvös L. University, Lithosphere Research Group, Department of Petrology and Geochemistry, Budapest, Hungary)
E-mail: szakalj@ludens.elte.hu

Neogene to Quaternary alkali basalts in the Carpathian–Pannonian Region contain a large number of sulphide bearing upper mantle xenoliths and clinopyroxene megacrysts. Sulphide inclusions of the clinopyroxene megacrysts of this area have not been studied yet in details.

Twenty-one clinopyroxene megacrysts and one clinopyroxenite xenolith from the Bakony–Balaton Highlands were selected to characterize the sulphide inclusions. Two types of the clinopyroxene megacrysts were identified: 1) clinopyroxenes with several olivine and spinel inclusions and a high abundance of sulphide inclusions (> 0.05 vol%); 2) clinopyroxenes which contain no olivine and spinel and less sulphide inclusions (<0.05 vol%). The sulphide occurring in clinopyroxene, in olivine and in spinel form blebs or equant negative crystals. These inclusions often form linear arrays parallel to the clinopyroxene growth faces. Most sulphide inclusions are monomineralic: Ni rich pyrrhotite, or MSS with 6–8 wt% Ni whereas some show lamellae or rims of exsolved chalcopyrite.

Sulphides could have been trapped as immiscible primary phases on the surface of the clinopyroxene that later grew around them. This mechanism was published by (ANDERSEN *et al.*, 1987).

Sulphates occur also as blebs along with the sulphide inclusions, showing the same structure and distribution as sulphides. These sulphates are Sr rich barites with minor Ca content. Similar Sr bearing barites were found in mantle rocks as a result of metasomatic events (PYLE & HAGGERTY, 1994).

P, T conditions were estimated from the same samples (TÖRÖK & DE VIVO, 1995), therefore we assume that three immiscible liquids (sulphide, sulphate and silicate) were present at mantle depth at 1029–1048 °C and at a pressure of about 1.0–1.1 GPa.

References

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