MINERAL CHEMISTRY AND PETROLOGY OF CHROMIUM-BEARING KYANITES IN ECLOGITES FROM THE POHORJE MOUNTAINS, SLOVENIA

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Eo-Alpine eclogites are commonly found in the southern parts of the Pohorje Mountains, Slovenia. Geochemical characteristics suggest an olivine, pyroxene, plagioclase and spinel bearing gabbroic cummulate as precursor rock. Turquoise coloured chromium-bearing kyanites in eclogites from the Pohorje Mountains, Slovenia, attracted attention in two samples, PM22 and PM26. Two different textures can be observed: (1) A first type characterised by tiny Cr-spinel inclusions within larger turquoise coloured kyanite (Fig. 1a) and (2) a second type formed around larger chromite crystals together with Cr-rich corundum (up to 9.1 wt% Cr_2O_3) and pargasitic amphibole (Fig. 1b). Cr_2O_3 values in kyanite reach up to 14.4 wt.%. Net transfer reactions, between garnet, clinopyroxene, phengite, kyanite and quartz/coesite, were used for *PT* estimates The calibration of KROGH RAVNA & TERRY (2004) resulted in highest pressures and temperatures close to the Qz-Coe transition with T = ~810 °C and P = ~2.9 GPa, while the dataset of HOLLAND & POWELL (1998) resulted in the lowest peak metamorphic conditions of ~2.2 GPa and 720 °C for the same reaction set. The calibration of BRANDELIK & MASSONNE (2004) is between both values with *PT* conditions of c. 2.5 GPa and temperatures around 710-760 °C. Zr in rutile thermometry was applied for independent temperature determination giving a mean of 748 °C.

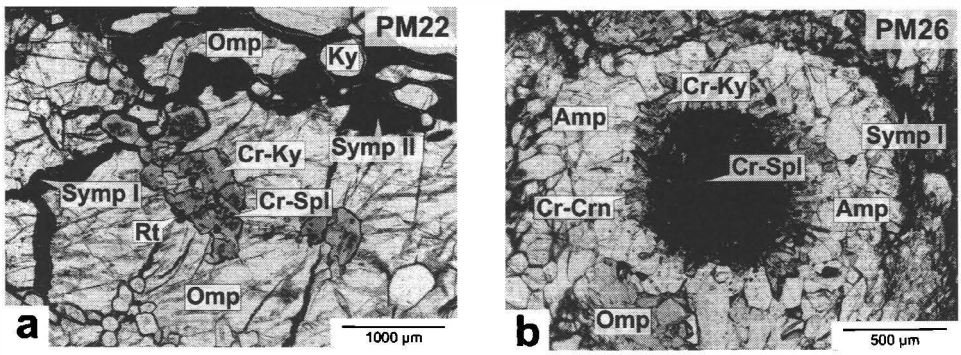

Figure 1. (a) Cr-kyanite with abundant chromite inclusions. (b) Cr-kyanite and Cr-corundum crystallized around a large Cr-Sp grain. Symp I = symplectite around Omph; Symp II = symplectite around kyanite.

BRANDELIK, A., MASSONNE, H.-J. (2004): Computers and Geosciences, 30, 909-923.
HOLLAND, T.J.B., POWELL, R. (1998): Journal of Metamorphic Geology, 16, 309-344
KROGH RAVNA, E.J., TERRY, M.P. (2004): Journal of Metamorphic Geology, 22, 579-592.