

Metamorphic P-T Conditions and Deformational Microstructures of Chloritoid and Kyanite-bearing Metapelites from the Southeastern Veporicum, Western Carpathians (Slovakia)

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Kyanite and chloritoid from the south and south-eastern Veporicum margin were first investigated by Mišík (1953) and Vrána (1964). These minerals occur in the Late Palaeozoic (Permian) metasediments at the boundary between the Veporicum and Gemericum.

The aim of our study were the Late Palaeozoic chloritoid and kyanite-bearing schists from the south-eastern Veporicum, near Hanková, which belong to the Permian Rimava formation. A characteristic mineral assemblage in these rocks is: quartz + white mica (muscovite-phengite-paragonite) + chloritoid + kyanite + chlorite ± ilmenite ± rutile. Such an assemblage is dependent on Al-rich bulk rock composition, thus Al-rich schists are less abundant in this area. However, they are very important for the evaluation of P-T conditions of the Alpine metamorphism in the Permo-Mesozoic cover sequences of the Veporicum.

Based on observed microstructures, chloritoid is growing parallel to foliation planes. In a later stage of deformation, it was reoriented and rotated into shear planes which are of an extensional character indicating top-to-the E movements.

Metamorphic P-T conditions were calculated by geothermobarometry, using activities-compositions relationships of mineral end-members based on microprobe analyses, and internally-consistent thermodynamic data. For the mineral assemblage chloritoid-chlorite-kyanite-quartz-water in the FMASH system, we estimated the temperature and pressure of 456 - 459°C and 8.2 - 9.3 kbar (PTAX - Berman, 1988); or 471 - 477°C and 5.6 - 7.2 kbar (THERMOCALC - Holland and Powell 1990). For these rocks, the Si p.f.u. content of around 6.4 in phengite is characteristic.

The estimated P-T conditions are in agreement with petrogenetic grids for metapelites (Bucher and Frey 1994; Spear

and Cheney 1989). The presence of kyanite and the absence of pyrophyllite indicate an overstep of the pyrophyllite stability curve. On the other hand, the upper boundary of chloritoid stability, i.e. the breakdown of chloritoid to garnet and/or staurolite was not reached, in accordance with petrographic observations and calculated P-T conditions.

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Lithological and Petrofacies Analyses of some Palaeozoic Clastics from Sudetes, Poland: Implications for the Geotectonic Position of Source Rocks

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Several samples of greywackes and arcoses from the west Sudetic Palaeozoic complexes were petrographically analysed in detail by the method of Dickinson and Suczek. The samples from the Góry Sowie Culmian, Depression of Swiebodzice,

Intrasudetic Depression and Góry Bardzkie Palaeozoic reflect by their composition and by its petrofacial evaluation substantial differences from the eastern Sudetes of Poland and from the Moravian-Silesian Culmian. The source of detritus in the

