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Minerálne zloženie laminovaných vápnitých fylitov z Črmeľskej doliny pri Košiciach (severné gemerikum, Slovenská republika)

Mineral composition of laminated calcareous phyllites in the Črmeľ valley at the town of Košice (Northern Gemericum, Slovak Republic)

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Abstract

Studied calcareous phyllites represent a part of Carboniferous Črmeľ Formation of the Northern Gemericum Unit (Western Carpathians, Slovak Republic). The mineral association of calcareous phyllites is composed of quartz, calcite, muscovite, Mg-Fe chlorites, albite and accessory minerals (fluorapatite, titanite, zircon and tourmalines). Chemical composition of analyzed muscovites has higher contents of Si (3.38 - 3.40 *apfu)* with K (up to 0.94 *apfu)*, Fe^{2+} (up to 0.18 *apfu)* and Mg (up to 0.33 *apfu)*. Chlorites contain Mg in range 2.12 - 2.36 *apfu* and Fe^{2+} in range 2.12 - 2.36 *apfu* with Fe/(Fe+Mg) ratio between 0.49 and 0.54. Chemical composition of albites is $Ab_{97.9-99.7}$ $An_{1.9}Or_{0.5}$. Content of F^- (up to 0.07 *apfu*) and OH^- (up to 0.07 *apfu*) in titanite is slightly increased with lower amount Ti (0.89 - 0.92 *apfu*). In titanites not very significant (Al, Fe^{3+}) + (OH, F) ↔ Ti + O substitution was also identified. Zircon consists of Si (up to 1.04 *apfu)*, Zr (up to 0.96 *apfu)* and very low content of Hf (up to 0.02 *apfu)*. Two types of tourmalines in calcareous phyllites are also present. Zonal tourmalines with central parts composed of schorl (1.95 - 2.47 *apfu* Fe; 0.93 - 0.97 *apfu* Mg; 0.45 *apfu* Na) and peripheral parts composed of dravite (1.09 - 1.19 *apfu* Fe; 1.66 - 1.93 *apfu* Mg; Na up to 0.79 *apfu)* and indistinctly zoned to non-zoned tourmalines were identified as magnesio-foitite (1.01 - 1.34 *apfu* Fe; 1.23 - 1.70 *apfu* Mg; 0.52 - 0.67 *pfu* vacancy). Studies of calcareous phyllites indicated metamorphic pressure-temperature conditions of 8 - 9 kbar at 330 - 340 °C using chlorite geothermometer and phengite geobarometer.

Key words: *mineral composition, calcareous phyllites, Črmeľ, Košice, Slovak Republic*

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