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Minerálne zloženie kryštalických vápencov z lokality Dobšiná - Kruhová (Slovenská republika)

Mineral composition of crystalline limestones from the locality Dobšiná - Kruhová (Slovak Republic)

Peter Ružička[1)]*, Pavol Myšľan[2)] a Tomáš Mikuš[3)]

*[1)]Katedra mineralógie, petrológie a ložiskovej geológie, Prírodovedecká fakulta, Univerzita Komenského v Bratislave, Ilkovičova 6, Mlynská dolina, 842 15 Bratislava, Slovenská republika; *e-mail: peter.ruzicka@uniba.sk*
[2)]Ústav vied o Zemi Slovenskej akadémie vied, Dúbravská cesta 9, 840 05 Bratislava, Slovenská republika
[3)]Ústav vied o Zemi, Slovenská akadémia vied, Ďumbierska 1, 974 11 Banská Bystrica, Slovenská republika

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Abstract

Crystalline limestones containing fragments of amphibolites from the locality Dobšiná - Kruhová are part of the Klátov complex (Northern Gemericum, Western Carpathians). The colour of studied rocks is light grey with massive texture and granoblastic structure. Inhomogeneous mottled to breccia-like character of a crystalline limestones is caused by the presence of amphiboles in the studied rocks. The identified mineral association of crystalline limestones consists of calcite, amphiboles (pargasite, magnesio-hornblende, actinolite), clinopyroxenes (diopside), albite and titanite. Chemical zonation of amphiboles from the crystalline limestones and fragments of amphibolites have been studied in BSE imaging. Light grey BSE zone is represented by pargasite (with more Fe^{2+} up to 1.37 *apfu* and less Mg up to 2.26 *apfu*) and dark grey BSE zone is represented by magnesio-hornblend and actinolite (less Fe^{2+} 0.68 *apfu* in magnesio-hornblende; 0.62 *apfu* in actinolite and more Mg up to 3.30 *apfu* in magnesio-hornblende and up to 4.03 *apfu* in actinolite). Diopside has slightly higher content of Al (up to 0.13 *apfu*) and low content of Fe^{2+} (up to 0.17 *apfu*) with X_{Mg} ratio in the range 0.83 - 0.96. Chemical composition of albites is $Ab_{91.12-98.21}An_{1.52-5.12}$ with ortoclase component in the range 0.22 - 4.49 mol. %. Titanites from the amphibolite fragments and crystalline limestones have identical chemical composition (Ca up do 1.00 *apfu*, Si up to 0.97 *apfu*). Lower content of Ti (0.88 - 0.95 *apfu*) and higher content of F (up to 0.27 wt. %) and H_2O (up to 0.38 wt. %) is present. In titanites not very significant (Al, Fe^{3+}) + (OH, F) ↔ Ti + O substitution was also identified. We assume that pargasite and magnesio-hornblende are products of prograde etape of metamorphosis unlike actinolite which is product of retrograde etape of metamorphosis. Diopside was generated by dehydration and decomposition processes of magnesio-hornblende and pargasite in a high-temperature prograde regime of metamorphosis in the conditions of upper amphibolite facies. Calcite is chemically pure, presence of dolomite has not been confirmed.

Key words: *mineral composition, crystalline limestones, Dobšiná, Slovakia*

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