PŮVODNÍ PRÁCE/ORIGINAL PAPER

Chondroditové a klinohumitové mramory podolského komplexu na Písecku a jejich fluorem bohatá Mg-Si-Ti-Ba-Zr minerální asociace (moldanubikum, Český masiv)

Chondrodite- and clinohumite-bearing marbles of the Podolsko Complex in Písek area and related F-rich Mg-Si-Ti-Ba-Zr mineral assemblage (Moldanubian Zone, Bohemian Massif)

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Abstract

Sporadic bodies of calcite-dolomite marble occur in migmatites and gneisses in the vicinity of the town Písek in Southern Bohemia (Podolsko Complex, Gföhl Unit, Moldanubian Zone, Bohemian Massif). The occurrence of low Si- and high Al/Si-, fluorine-rich chondrodite marbles is typical for Podolsko Complex. Mineral assemblages of marbles are characterized by a high content of the humite-group minerals; especially chondrodite (5.57 to 7.54 wt. % and 1.008 - 1.368 *apfu* F, X_F = 0.50 - 0.68), rarely clinohumite (3.24 to 3.68 wt. % and 1.093 - 1.230 *apfu* F, X_F = 0.55 - 0.62) and hydroxyl-clinohumite (1.07 to 2.87 wt. % and 0.358 to 0.964 *apfu* F, X_F = 0.18 - 0.48), respectively. Clinochlore and spinel occur frequently in the assemblage with humite-group minerals, while tremolite, forsterite and Ba-mica are less abundant and diopside is exceptional. Barium-bearing phlogopite (≤14.53 wt. % BaO, ≤0.456 *apfu* Ba), unique fluorine-rich kinoshitalite (15.99 to 20.70 wt. % BaO; 0.492 - 0.658 *apfu* Ba; ≤1.050 *apfu* F) and clintonite are scarce. Accessory minerals represent fluorapatite, ilmenite-geikielite, zirconolite and baddeleyite. Fluorite, serpentine-group minerals and baryte represent secondary (retrograde) phases. The P-T conditions of the assemblage calcite + chondrodite ± clinochlore ± spinel ± dolomite (± clinohumite ± forsterite ± geikielite) can be estimated only approximately. We expect particularly influx of F and Si into the relatively pure marbles by external fluids under conditions of the HT/MP-LP metamorphism (P ~ 3 - 4 kbar, T> 600 °C X_{CO2} 0.3 - 0.8).

***Keywords**: chondrodite, clinohumite, kinoshitalite, geikielite, zirconolite, baddeleyite, marble, Podolsko Complex, Moldanubian Zone, Bohemian Massif*

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