PŮVODNÍ PRÁCE/ORIGINAL PAPER

Minerální asociace a chemické složení chloritů z alpských žil od Markovic u Čáslavi (kutnohorské krystalinikum)

Mineral assemblage and chemical composition of chlorites from Alpine-type veins from Markovice near Čáslav (Kutná Hora Crystalline Complex)

Zdeněk Dolníček* a Jana Ulmanová

*Mineralogicko-petrologické oddělení, Národní muzeum, Cirkusová 1740, 193 00 Praha 9 - Horní Počernice; *e-mail: zdenek_dolnicek@nm.cz*

Dolníček Z, Ulmanová J (2019) Minerální asociace a chemické složení chloritů z alpských žil od Markovic u Čáslavi (kutnohorské krystalinikum). Bull Mineral Petrolog 27(1): 212-220 ISSN 2570-7337

Abstract

An electron-microprobe study was conducted on chlorites originating from four paragenetically distinct types of Alpine-type veins and host amphibolites and marbles from the quarry Markovice near Čáslav (central Bohemia, Czech Republic). The studied chlorites belong to the trioctahedral chlorites of the clinochlore-chamosite series showing wide ranges of contents of all main constituents [2.76 - 3.70 *apfu* Si, 2.76 - 3.70 *apfu* Al, 0.37 - 4.32 *apfu* Fe, 0.23 - 4.64 *apfu* Mg, Fe/(Fe+Mg) = 0.07 - 0.95]. Chlorites from different types of Alpine-type veins show very different trends in the Si vs. Fe/(Fe+Mg) plot and also very different formation temperatures (total range 84 - 354 °C), which were calculated using chlorite thermometers based on amount of tetrahedral Al. The calculated temperatures, however, correlate very well with mineral composition of the studied samples. We interpret all these findings in terms of polyphase crystallization of chlorites, which was associated with episodic opening of veins whereas each episode was characterized by specific composition of fluids and specific physico-chemical parameters. Part of chlorites in a single sample showed enrichment in Ni (up to 0.15 *apfu*), which could indicate some interaction of the parent fluids with (meta)ultrabasic rocks. Moreover, one sample gave evidence for thermal rejuvenation as high as 150 °C during crystallization of chlorite. The obtained results suggest highly dynamic hydrothermal system which is in agreement with previously indicated repeated changes of temperature, pressure and/or chemical composition of parent fluids, which were interpreted from both silicate and sulphide parageneses of Alpine-type veins from Markovice.

Key words: *Alpine-type veins, chlorite, chemical composition, chlorite thermometry, Kutná Hora unit, Bohemian Massif, Czech Republic*

Obdrženo 14. 5. 2019; přijato 8. 7. 2019