

Nové poznatky o stříbrnosné žilné mineralizaci Zn-Pb ložiska Horní Město (vrbenská skupina silezika)

New findings on silver-rich vein mineralization of the Zn-Pb deposit Horní Město (Vrbno Group, Silesicum), Czech Republic

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DOLNÍČEK Z, SKÁCEL J, NEPEJCHAL M (2019) Nové poznatky o stříbrnosné žilné mineralizaci Zn-Pb ložiska Horní Město (vrbenská skupina silezika). Bull Mineral Petrolog 27(2): 279-289 ISSN 2570-7337

Abstract

A detailed investigation of an archive sample of vein Ag-mineralization from the Zn-Pb deposit Horní Město yielded a number of new mineralogical findings. Allargentum, miargyrite, freibergite, fluorapatite and rhodochrosite were described for the first time here. Rutile showed admixtures of W, Nb and Zr, pyrrargyrite contained increased proustite component (up to 32 mol. %) and K-feldspar had slightly elevated celsian component (1.0 - 3.4 mol. %). Freibergite represents the silver- and antimony-richest member of the tetrahedrite group, which was ever found in this deposit. Because there are commonly occurring As- and Sb-bearing minerals in the host stratiform base-metals ores, we suggest that enrichment in Sb of the studied vein mineral assemblage was caused by chemical fractionation of elements during crystallization. The nature of older portion of the vein mineralization composed especially of K-feldspar, quartz, calcite, apatite, rutile, pyrite and arsenopyrite is close to late-metamorphic precipitates of the Alpine-type veins. In contrast, the Ag-minerals are younger, but the explicit origin of their parent fluids remains unresolved. With respect to the presence of various mineral phases with very different contents of Ag, Sb and S it is evident that significant changes in activities of these elements occurred during formation of the studied vein Ag mineralization. The observed complex chemical zonation of freibergite indicates a continuous geochemical evolution of the hydrothermal system, which was disrupted by at least two disturbances.

Key words: Ag-rich vein mineralization, allargentum, pyrrargyrite, freibergite, stratiform Zn-Pb deposits, Horní Město, Vrbno Group, Bohemian Massif

Obdrženo 24. 9. 2019; přijato 8. 11. 2019