

Selenidy z fluoritového ložiska Moldava v Krušných horách (Česká republika)

Selenides from the fluorite deposit Moldava, Krušné hory Mountains (Czech Republic)

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Abstract

A mineral association of Pb, Ag and Bi selenides in carbonate - fluorite - quartz gangue was found at samples from the abandoned fluorite mine Moldava in the Krušné hory Mts. (northern Bohemia, Czech Republic). The minerals from the clausthalite - galena solid solution are the most abundant; four their types were determined on the base of chemical composition and associations. The first occurs as fine-grained aggregates up to 2 mm in size and impregnations formed by irregular grains up to 100 μm across (some with naumannite) and rarely also idiomorphic crystals up to 5 μm in coffinite. It is clausthalite with S contents up to 0.14 *apfu*. The second type forms grains up to 20 μm in association with native Ag, naumannite and Se-rich acanthite, it is clausthalite with S contents in the range 0.24 - 0.32 *apfu*. The third type is represented by aggregates up to 200 μm of Se-rich galena (to clausthalite) in association with bohdanowiczite and Ag-Pb-Cu-Bi-(Se,S) phase with Se contents in the range 0.38 - 0.48 *apfu*. The fourth type forms aggregates up to 100 μm across in association with aikinite and it is galena with Se contents in the range 0.17 - 0.45 *apfu*. Naumannite was found as aggregates up to 100 μm in size, its empirical formula can be expressed as $\text{Ag}_{1.00}(\text{Se}_{0.97}\text{S}_{0.02})_{\Sigma 0.99}$. Se-rich acanthite (0.11 - 0.49 *apfu* Se) occurs as grains up to 90 μm across in association with native Ag, naumannite and coffinite. S-rich bohdanowiczite forms aggregates up to 80 μm in size in association with Se-rich galena and Ag-Pb-Cu-Bi-(Se,S) phase; its chemical composition corresponds to the empirical formula $(\text{Ag}_{1.05}\text{Pb}_{0.01})_{\Sigma 1.06}\text{Bi}_{1.01}(\text{Se}_{1.30}\text{S}_{0.63})_{\Sigma 1.93}$. Aikinite was found only rarely as grains up to 20 μm in association with Se-rich galena, its empirical formula is $(\text{Cu}_{3.85}\text{Fe}_{0.20})_{\Sigma 4.05}\text{Pb}_{4.04}\text{Bi}_{3.95}(\text{S}_{12.19}\text{Se}_{0.45})_{\Sigma 12.64}$. The aggregates of Ag-Pb-Cu-Bi-(Se,S) phase occurs in association with Se-rich galena and bohdanowiczite; its chemical composition is very variable; this phase is interpreted as submicroscopic (< 1 μm) intergrowths of aikinite and bohdanowiczite. The native silver forms grains up to 100 μm in association with naumannite, Se-rich acanthite and coffinite. The described mineral association was probably formed from two or more fluids exhibiting different $f\text{Se}_2/f\text{S}_2$ ratios and disequilibrium of system.

Key words: selenide, clausthalite - galena solid solution, bohdanowiczite, naumannite, aikinite, chemical composition, Moldava, Czech Republic

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