

Makroskopický covellin z rudního revíru Krupka v Krušných horách (Česká republika)

Megascopic covellite from the ore district Krupka, the Krušné hory Mountains (Czech Republic)

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Abstract

Megascopic aggregates of covellite were found at thin vein in the old Martin gallery, the Krupka ore district, the Krušné hory Mountains, Czech Republic. Covellite forms abundant grains 0.1 - 2 mm in size in association with amorphous Fe-As-Si-O phase, tennantite and rare brochantite. It is opaque, dark indigo blue to dark purple with intense metallic luster and perfect cleavage. Covellite from Krupka is hexagonal, space group $P6_3/mmc$, the unit-cell parameters refined from X-ray powder data are: $a = 3.794(2)$, $c = 16.39(1)$ Å and $V = 203.9(2)$ Å³. Chemical analyses yielded average composition Ag 0.83, Zn 0.03, Cu 65.16, Sb 0.02, S 33.05, total 99.08 wt. %, corresponding to $(Cu_{0.99}Ag_{0.01})_{\Sigma 1.00}S_{1.00}$ on the basis of 2 *apfu*. Associated tennantite is Zn-dominant member with average composition Ag 0.13, Fe 0.40, Cd 0.21, Zn 8.27, Cu 42.44, Sb 0.02, Bi 0.07, As 19.66, S 28.08, total 99.28 wt. % and empirical formula $(Cu_{9.97}Ag_{0.02})_{\Sigma 9.99}(Zn_{1.89}Fe_{0.11}Cd_{0.03})_{\Sigma 2.03}(As_{3.92}Bi_{0.01})_{\Sigma 3.93}S_{13.07}$ on the basis 29 *apfu*. The origin of macroscopic covellite at Krupka is interpreted as product of weathering of primary tennantite in conditions of supergene enrichment.

Key words: covellite, tennantite, X-ray powder diffraction, chemical composition, the Krupka ore district, Czech Republic