Owyheeit z rudního revíru Freiberg (SRN) a jeho doprovodné minerály

Owyheeite from the Freiberg ore district (Germany) and its associated minerals

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Abstract

Rare sulphosalt mineral owyheeite was determined in historical museum sample from Beschert Glück mine of the Brand-Erbisdorf deposit, the Freiberg ore district (Germany). Owyheeite forms there lath-like or acicular crystals up to 600 μm in size in diaphorite aggregates or xenomorphic aggregates replacing older freibergite. In reflected light it is white to greyish white with slight bireflectance (greenish white - grey) and anisotropic with rotation tints in shades brownish white to bluish grey. It has a mean VHN (20 g load) of 176 (155-210) kp.mm^{-2} with K_{VH} 1.35. Owyheeite is monoclinic, space group $P2_1/c$, the unit-cell parameters refined from the X-ray powder data are: *a* 4.1047(2), *b* 27.333(1), *c* 22.9490(9) Å, *β* 90.396(4)° and *V* 2574.7(2) Å^3. Its chemical composition (mean of 8 points), Ag 7.16, Pb 43.78. Cu 0.02, Sb 28.76, Bi 0.01, As 0.06, S 19.22, total 99.02 wt. % corresponds to empirical formula $(Ag_{3.10}Cu_{0.02})_{\Sigma 3.12}Pb_{9.86}(Sb_{11.02}As_{0.04})_{\Sigma 11.06}S_{27.96}$ on the basis of 52 *apfu*. The ore minerals, diaphorite, freibergite, freislebenite, galena, loellingite and pyrarargyrite were determined in close association and data for their chemical composition are given.

The succession of origin of minerals in the studied sample is as follows: quartz, rhodochrosite → freibergite → loellingite → galena → diaphorite → owyheeite, freieslebenite → pyrargyrite.

***Key words**: owyheeite, freibergite, freieslebenite, diaphorite, pyrargyrite, X-ray powder data, chemical composition, ore microscopy, mineralogy, Freiberg, Saxony, Germany*