

HYDROTHERMAL Au-Ag MINERALIZATION OF THE PEZINOK–STARÉ MESTO DEPOSIT (MALÉ KARPATY MTS., SLOVAKIA)

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The most important type of ore mineralization in the Malé Karpaty Mts. is Sb-As-Au mineralization in the Pezinok area, hosted by Pezinok–Pernek crystalline formation of Silurian–Devonian age (amphibolites, actinolite schists, phyllites, black schists), mined until beginning of 1990's. In the vicinity of Sb-As-Au deposit, in distance less than 1 km, Au-Ag mineralization in several occurrences is hosted by a small massif of Variscan granitoids of Bratislava type (two-mica granodiorites, leucocratic granites and pegmatites). The largest occurrence, the Pezinok–Staré Mesto deposit, mined mainly in the Middle Ages until the end of 19th century, is formed by several parallel NW–SE and transversal E–W veins and veinlets bounded in mylonitized zones. The length of the mineralization, according to the area of old mining works, can reach more than 1 km, vertical extent is unknown. The power of veins varied from 0.0X to 0.X m, max. 1 m. From the gangue minerals quartz is dominating, carbonates are rare. The content of gold varied from 0.X to X0 ppm Au.

Mineralization occurred in several stages. The oldest one is characterized by arsenopyrite, pyrite and gold. The grains of pyrite and arsenopyrite frequently form impregnations in silicified granitoid rocks and nests and strips in quartz. One of the latest minerals that crystallized in this mineral stage, was gold. It forms isolated grains, nests and rare veins of mm length. It is frequently concentrated in the margin of the thin veins. The size of gold grains varies from 0.01 to 5 mm, the largest amount of gold grains are concentrated in the fraction to 0.16 mm. Pyrite and arsenopyrite is often replaced by gold, it closes or cements their cataclased grains. Fineness of gold can have values from 792 to 909.

The minerals of the later mineral stage are rare in the deposit. They fill thin cracks and also create small nests and grains in quartz. The most frequent is the appearance of pyrite, Ag-tetrahedrite, chalcopyrite and electrum, and less frequent is galena, sphalerite, bournonite and polybasite. The fineness of electrum varies from 684 to 753. It was found that gold with high Ag content (fineness 584) has 0.0X mm grains in chalcopyrite and appears in the form of margins and thin veins in gold with higher fineness.

In the vicinity of the occurrences of Au-Ag mineralization in the alluvial sands and gravels there is an anomal content of gold grains. Gold placers were mined in Middle Ages, nowadays the content of gold in alluvial placers of Limbašský potok brook is max. 0.221 g/m³. Gold occurs mostly in the form of nuggets, less frequently in the form of flakes of size to 1 mm. Formation of nuggets and Au rich rims was not found.

One of the most frequent type of ore mineralization in Variscan basement is Sb-Au mineralization. The deposit Pezinok–Staré Mesto is a unique type of mineralization in the Western Carpathians, where Au mineralization develops on its own, without connection with Sb mineralization.