

## **MINERALOGICAL AND PETROLOGICAL STUDIES OF EPITHERMAL ORE INDICATIONS AT MÁTRAKERESZTES, WEST MÁTRA MTS., HUNGARY**

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The indications are situated at the western border of the Gyöngyösoroszi–Mátraszentimre low sulfidation ore field, in the Neogene part of the Mátra Mts., representing a characteristic part of the polymetallic-epithermal zone of the Inner Carpathian Volcanic Belt. This mineralization is situated in a caldera structure, which was formed in andesitic type stratovolcanic series. The direct host rocks exhibit slight acidic features (trachytes). According to the K/Ar data, the age of the whole volcanic sequence is about 12–16 Ma.

The host rock shows intensive silicification and K metasomatic alteration. The argillitization (montmorillonite, sericite) and hydrohematitization are of secondary importance. The poor, original sulfide mineralization (marcasite and arsenic pyrite with 2 wt% As) is accompanied by silicification, in form of stockworks and little veins with banded structure. In these objects the hydrothermal K-feldspar („adularia”) is frequent. Later these minerals were transformed into goethite and jarosite during the gossan formation, indicating the high potassium content (max. 13 % K<sub>2</sub>O) of the host rock. In the area there is a high As-Sb(-Hg-Ba) anomaly (8500 ppm As, 1000 ppm Sb) which is due to the Fe bearing secondary minerals.

The low sulfidation type mineralization proceeded at 190–200°C. The total salinity of solutions was low (0.2–5 NaCl equiv. wt%) compared to other deposits of the western Mátra Mts. The composition of the fluids was mainly Ca-Na chloride type (the vein forming stage), but subordinately alkali bicarbonate/sulfate fluids also occur (in open cavities of the host rock, in the so-called „apophysis” stage) with lower salinity. The dilution of solutions was characteristic, since the originally mixed fluids could be diluted-cooled by the direct influence of the meteoric water.

Consequently, the upper region of the vein system of a low sulfidation type mineralization can be identified, which is located in a shallower depth than the vein systems of the Gyöngyösoroszi–Mátraszentimre mineralization. Later these rocks were exposed on the surface, and were transformed under oxidizing conditions.