

## **SIDERITE MINERALIZATION IN THE NÍZKE TATRY MTS., WESTERN CARPATHIANS, SLOVAKIA**

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Siderite deposits are the most abundant type of mineralization in the Western Carpathians. The Nízke Tatry Mts. is located in two basic geological units: the Tatric unit (Ďumbier part) and the Veporic unit (Kráľova hoľa part). These basic tectonic units are divided by the Čertovica line. The most frequent occurrence of siderite mineralization lies around this line. Hydrothermal carbonate-quartz-sulphide veins have small length, up to 3 km. Veins are hosted by the mylonitic zone in gneisses and amphibolites of the Tatric unit, by phyllites of the Veporic unit and rarely by Lower Triassic quartzite. Prevalent direction of veins is ENE–WSW. Veins have an inclination to the south. Maximum thickness is around 4 m. Hydrothermal alteration, such as silicification and less prominently sericitization, are very typical around the veins. The thickness of the alteration zone is max. 25 cm.

Carbonate-quartz-(barite-)sulphide veins are formed in several stages. The alternation of carbonate and quartz-sulphide±barite phases is typical. Carbonate and quartz-sulphide stages precipitated as the main phases of the mineralization. Sometimes a barite-sulphide phase is also present. Ni-Co mineralization is also part of the siderite-quartz-sulphide mineralization. A hematite stage terminated the hydrothermal process in the siderite veins. Primary minerals identified in the siderite veins are ankerite, dolomite, calcite, kutnohorite(?), siderite, albite, apatite, barite, hematite, clinocllore, muscovite, schorl, aikinite, arsenopyrite, benjaminite, bismuth, bismuthinite, carrollite, cosalite, friedrichite, galena, gersdorffite, gustavite(?), hammarite, chalcopyrite, cobaltite, quartz, krupkaite, krutovite(?), cubanite(?), lindströmite, magnetite, marcasite, pekoite, pyrite, schirmerite(?), sphalerite, tennantite and tetrahedrite. Secondary minerals identified here are aragonite, azurite, cerussite, chalcocite, covellite, pharmacosiderite, ferrisymplectite, goethite, hematite, malachite and pyromorphite.

Occurrence of sulphosalts of the bismuthinite-aikinite series is a typical sign of siderite mineralization in the Nízke Tatry Mts. Brecciated textures dominate at the majority of localities in the Nízke Tatry Mts. Combed textures are also very abundant. Sulphides and sulphosalts occur disseminated. Massive, drusy and banded textures are also present at the several localities.

Fluid inclusions are also studied in these localities. Two-phase inclusions were observed in ankerite from the Jánov grúň locality. They consist of vapour and aqueous solution of NaCl. The size of inclusions is less than 7 µm. Homogenization temperature (Th) ranges from 173 to 246 °C. Salinity of solution was calculated from melting temperature of ice, it ranges from 16.9 to 26.5 wt% NaCl equiv. The same two-phase inclusions were observed in quartz from the Sokolova dolina and Jánov grúň localities. Their size is from 4 to 12 µm. Th ranged from 99 to 200 °C (Jánov grúň) and 138 to 200 °C (Sokolova dolina). Salinity ranges from 8 to 28 wt% (Jánov grúň) and 11 to 17 wt% NaCl equiv. (Sokolova dolina).