

**SPHALERITES IN PARTICULAR GENETIC TYPES OF SULPHIDE
MINERALIZATION IN THE ROZNÁ URANIUM DEPOSIT (CZECH REPUBLIC)**

Losos, Z. & Dolezalová, H.

Institute of Geological Sciences, Faculty of Science, Masaryk University,
Kotlářská 2, 611 37 Brno, Czech Republic,
e-mail: losos@sci.muni.cz

Sphalerite occurs in the following types in the Rozná uranium deposit: stratabound disseminated sulphide and skarn mineralisation, pre-uranium siderite-sulphide veins including the metasomatic mineralization in the vicinity of these veins, and post-uranium barite-fluorite-sulphide veins.

In marbles with disseminated or banded ore textures sphalerite is part of the paragenesis with pyrrhotite, galena ± younger pyrite. Sphalerite of the siderite-sulphide veins is associated with Ag-tetrahedrite, chalcopyrite and galena, rarely with freibergite or pyrargyrite. Sphalerite, galena and mobilized pyrite also occur in metasomatic reaction zones around the veins. The youngest sphalerite type, in paragenesis with galena, barite ± quartz, crystallized in the cavities during the final stages forming the post-uranium veins.

Results of WDA and EDA analyses (61 point analyses, Zn, Fe, Mn, Cd, Se, Cu, In, Ge, Ag and S were measured) and isotopic data are presented in this study. It can be excluded that the source of sphalerites in the siderite-sulphide veins (max. 0.02 wt.% of Mn) was the stratabound sulphide mineralization (sphalerites disseminated in marble – Mn between 0.46 - 14.61 wt.%). This is supported by the sulphur isotope data of both disseminated sphalerite and pyrrhotite. We suggest that the source of disseminated sulphides is the marble protolith.

The chemical composition of sphalerite from metasomatite reaction zones around the veins is so close to the chemical composition of sphalerites within the veins, that we classify this Pb-Zn mineralisation as subtype of the pre-uranium hydrothermal siderite-sulphide mineralisation. The necessary sulphur derived from deep-seated sources, a conclusion drawn from the sulphur isotope study. Using isotope thermometry we estimated the crystallisation temperatures for this type of mineralisation between 260 and 330 °C.

The chemical composition of sphalerite in the youngest sphalerite-barite-fluorite-veins varies (Cd content between 0.15 - 1.88 wt.%) and they have low contents of Fe and Mn. They are probably products of partial, chronologically well separated mineralisation phases, or these sphalerites crystallised from locally circulating solutions. Sphalerite-galena isotope thermometry yielded crystallisation temperatures between 100 and 200 °C for these ores.

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