

Summary

The study of fluid inclusions proved the metamorphic origin of the cinnabar-pyrite mineralization at the deposit of Horní Luby. In addition, thermal conditions of the mineralization formation were determined. During the deposit forming processes, the primary homogenous H₂O-CO₂ fluid of the temperature of about 300°C was differentiated to fractions rich in H₂O or CO₂. The differentiation took place in several stages in the temperature range between 200 to 150°C. Quartz crystallized from the parent fluid at the temperature about 300°C, pyrite at temperatures in the range of 220°C to 210°C and cinnabar at temperatures in the range of 195°C to 160°C. The cinnabar is thus the youngest mineral at the deposit (crystallization succession. quartz – pyrite – cinnabar). At the deposit of Jedová hora, quartz crystallized at the temperature of about 160°C to 150°C, barite at temperature of about 115°C (the fluid boiling point) and cinnabar in the range between these temperatures.

The origin of mercury at all Czech historical deposit of cinnabar can be very likely related to Lower Paleozoic submarine volcanism. In all cases, the pre-concentrated mercury was remobilized during the Variscian metamorphism, followed by precipitation in form of veins with cinnabar or as cinnabar impregnation.

Study of tetrahedrite from the deposit of Jedová hora identified its unusual composition. Tetrahedrites from this location have very high content of mercury, more than 18 wt. % Hg in average. This composition is close to the ideal crystallochemical formula ${}^{\text{III}}\text{Cu}_6{}^{\text{IV}}[\text{Cu}_4\text{Hg}_2]\text{Sb}_4\text{S}_{13}$. Thus the tetrahedrites from Jedova hora theoretically represent a separate mineral specie of the tetrahedrite group.