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PŮVODNÍ PRÁCE/ORIGINAL PAPER

Pb-Bi mineralizace v amfibolitech z lomu Libodřice u Kolína (kutnohorské krystalinikum, Česká republika)

Pb-Bi mineralization in amphibolites from the quarry Libodřice near Kolín
(Kutná Hora Crystalline Complex, Czech Republic)

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Abstract

An interesting ore mineralization containing Pb-Bi minerals, present in a thin layer parallel with schistosity of the host amphibolite, was newly recognized in the Libodřice quarry near Kolín (Kutná Hora Crystalline Complex, Czech Republic). The disseminations of ore minerals are formed especially by pyrrhotite and chalcopyrite, less pyrite and accessory galena, native bismuth, cosalite, bismuthinite and joséite-B. The equilibrium textural relationships of rock-forming silicates and main sulphides indicate that the ore assemblage underwent metamorphic recrystallization together with the host rock, however, indications of younger local re-equilibrations under changed physico-chemical conditions (especially temperature, fugacity of sulphur, fugacity of oxygen) were also observed. The presence of polysynthetic lamellae in chalcopyrite suggests for its origin/re-crystallization at temperatures above 550 °C. Sporadic cosalite, stable at temperatures below 425 °C, was probably precursor of pseudomorphs today formed by galena and native bismuth. Pseudomorphs originated at temperatures below 271 °C probably due to local decrease of sulphur fugacity caused by growth of associated pyrrhotite. The local sulphurisation of small amount of native bismuth to bismuthinite and small part of pyrrhotite to pyrite finished the process of ore evolution. The presence of elevated contents of Te, Se and Ni in the studied mineralization confirms the source of these elements in the host rock environment, which was presupposed on the basis of earlier mineralogical study of Alpine-type veins in the area of the Kutná Hora Crystalline Complex.

Key words: Pb-Bi mineralization, bismuth, cosalite, joséite-B, Libodřice, Kutná Hora Crystalline Complex, Bohemian Massif

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