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PŮVODNÍ PRÁCE/ORIGINAL PAPER

Kremeňovo-karbonátové žily s U-Mo-Cu mineralizáciou v permských intermediárnych až bázických vulkanitoch hronika na lokalite Kravany (Kozie chrby, východné Slovensko)

Quartz-carbonate veins containing U-Mo-Cu mineralization in the Permian intermediate to basic volcanic rocks of the Hronicum Unit at Kravany (Kozie Chrby Mts., eastern Slovakia)

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Abstract

Historical uranium ore deposit Kravany is located in the eastern part of Kozie Chrby Mts., approximately 9 km SW of the district town Poprad. Stratiform, infiltration U-Cu-Pb mineralization is bound to the Upper Permian clastic sediments (Kravany Beds, member of Malužiná Formation, Hronicum Unit), which are enriched in fragments of carbonized flora. Vein U-Mo-Cu mineralization was found in the Upper Permian intermediate to basic volcanics intersecting the sediments of the Kravany Beds (also ore lenses). Vein filling originated in the following development stages: I.) Quartz-pyrite (quartz, pyrite, marcasite), II.) Dolomite-pyrite (dolomite, pyrite, marcasite, galena), III.) Copper (tetrahedrite, tennantite, chalcopyrite), IV.) Uranium-molybdenum (uraninite, Pb-Mo-S phase, coffinite, quartz), and V.) Calcite (calcite, chalcopyrite). The formation of mineralization can be explained by the geological position: random emplacement of the diorite porphyrite, resp. basalt-andesite dikes, directly in the preexisting U,Mo-bearing sediments. Vein U-Mo-Cu mineralization could thus most likely have formed according to the following scenario: I.) sedimentation of Kravany Beds in the Permian riftogenic basin: formation of beds of arkoses and arkosic sandstones with abundant fragments of charred flora, II.) formation of infiltration U mineralization: reduction and accumulation of U in sediments rich in organic matter, III.) emplacement of dikes of intermediate to basic volcanics: intersection of sediments with organics and with high U and Mo content, mobilization of formation fluids, assimilation of U and Mo into intermediate-basic magma, IV.) cooling of volcanic bodies → their contraction (formation of contraction cracks) → filling of contraction cracks with quartz, carbonates and ore minerals (crystallization from residual magmatic solutions mixed with formation waters). From this point of view it is syngenetic volcanogenic vein U-Mo-Cu mineralization, originally of the Permian age, with subsequent Alpine (most probably Cretaceous) reworking (this is evidenced by the variable composition of uraninite). It belongs to the Neohercynian late- to postorogenic metallogenetic stage. The possible younger, post-Permian age of mineralization from alpine hydrothermal solutions must also be assumed, but this consideration has several inconsistencies.

Key words: uraninite, molybdenite, remobilization, volcanogenic deposit, volcanic rocks, Permian, Hronic Unit, Western Carpathians

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