PŮVODNÍ PRÁCE/ORIGINAL PAPER

Pokročilá argilitizácia na Au-porfýrovom ložisku Detva - Biely vrch v stratovulkáne Javorie (stredné Slovensko)

Advanced argillic alteration at the Detva - Biely Vrch Au-porphyry deposit, Javorie stratovolcano (central Slovakia)

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Abstract

The Detva - Biely Vrch deposit represents a new economic Au-porphyry mineralization discovered in central Slovakia. The deposit is located in the central zone of the Middle Miocene Javorie stratovolcano, and shares many properties typical for Au-porphyry deposits. Parental intrusion of diorite to andesite porphyry and its andesitic volcanic host rocks are affected by extensive alteration. Advanced argillic alteration is the upper most and usually the youngest zone of alteration on the objects with porphyry style mineralization. The advanced argillic alteration at Biely vrch overprints older alterations, especially intermediate argillic and K-silicate alteration. It occurs in the form of vertical ledges, locally including hydrothermal-explosive breccias. Advanced argillic alteration results from leaching of main rock-forming elements (Ca, Na, K, Mg, Fe). The most intensively altered zones are depleted also in Al and only residual quartz is preserved. Increased content of S and P in the close proximity of these zones is confirmed by the presence of sulphate-phosphate minerals. The following advanced argillic mineral assemblage has been identified: pyrophyllite, quartz, kaolinite, topaz, andalusite, dumortierite, rutile, pyrite, chalcopyrite, and Al-rich sulphate-phosphate minerals represented by alunite, svanbergite to Ba-dominant analogue of svanbergite ("Ba-svanbergite"), woodhouseite, natroalunite and augelite. This alteration originates by condensation of magmatic vapors enriched in acid-forming compounds (mostly SO_2). A part of fluid inclusions related to the advanced argillic alteration at Biely vrch shows a trend of decreasing temperature with increasing salinity, which might be interpreted as a consequence of condensation of low density fluids (vapors), responsible for advanced argillic alteration.

Key words: *Au-porphyry deposit, advanced argillic alteration, sulphate-phosphate minerals, gold, Javorie Mts., Slovakia*

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