PŮVODNÍ PRÁCE/ORIGINAL PAPER

Burgessit, nový minerál pro jáchymovský rudní revír (Česká republika)

Burgessite, a new mineral for the Jáchymov ore district (Czech Republic)

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Abstract

Very rare mineral specie, burgessite $Co_2(H_2O)_4[AsO_3(OH)]_2(H_2O)$, was identified at single historical sample from the Jáchymov ore district, Krušné hory Mountains, Czech Republic. Burgessite occurs as light to purplish red hemisperical aggregates up to 0.8 mm in size formed by elongated prismatic crystals (length to 0.4 mm and diameter of about 10 - 30 μm only). Tiny green thin tabular zeunerite crystals and purple red crusts of amorphous Co-Ni-Cu hydrogen-arsenate phase were found in the association. Burgessite is monoclinic, space group $P2_1/n$, the unit-cell parameters refined from the X-ray powder diffraction data are: *a* 4.672(1), *b* 9.281(2), *c* 12.606(3) Å, β 99.11(2)° and *V* 539.8(2) Å^3. The average chemical composition (mean of 8 point analyses) of burgessite CaO 0.10, FeO 0.29, MgO 0.14, CuO 1.51, CoO 16.03, NiO 13.32, ZnO 0.63, As_2O_5 47.63, P_2O_5 0.21, SO_3 0.72, $H_2O_{calc.}$ 22.96, total 103.54 wt. % corresponds to the empirical formula $(Co_{1.00}Ni_{0.84}Cu_{0.09}Zn_{0.04}Mg_{0.02}Fe_{0.02}Ca_{0.01})_{\Sigma 2.02}(AsO_3OH)_{1.94}(SO_4)_{0.04}(PO_3OH)_{0.01}\cdot 5H_2O$ on the basis of (As+S+P) = 2 *apfu*. The occurrence of Ni-rich burgessite at the Jáchymov ore district is the second locality of this mineral phase worldwide.

Key words: *burgessite, powder X-ray diffraction data, unit-cell parameters, chemical composition, the Jáchymov ore district, Czech Republic*

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