PŮVODNÍ PRÁCE/ORIGINAL PAPER

Metatorbernit a lithioforit z uranového ložiska Předbořice (Česká republika)

Metatorbernite and lithiophorite from uranium deposit Předbořice (Czech Republic)

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Abstract

An unusual association of metatorbernite and lithiophorite was found at the uranium deposit Předbořice located about 8 km S from Krásná Hora, central Bohemia, Czech Republic. Metatorbernite forms idiomorphic tabular or dipyramidal emerald green crystals up to 11 mm in size on quartz gangue. It is tetragonal, space group *P* 4/*n*, the unit-cell parameters refined from X-ray powder diffraction data are: *a* 6.9668(1), *c* 17.3240(5) Å and *V* 840.84(4) Å^3. Chemical analyses of metatorbernite correspond to the empirical formula $(Cu_{0.72}Ba_{0.19}Co_{0.02}Ca_{0.01})_{\Sigma 0.94}(UO_2)_{1.97}(PO_4)_{1.99}(AsO_4)_{0.01}.8H_2O$. Younger lithiophorite forms grey-black to black coatings and crusts with reniform to hemispherical aggregates on quartz gangue or metatorbernite crystals. It is trigonal, space group *R*-3*m*, the unit-cell parameters refined from X-ray powder diffraction data are: *a* 2.908(1), *c* 28.20(3) Å and *V* 206.4(3) Å^3. Chemical analyses of lithiophorite correspond to the empirical formula $(Al_{0.78}Li_{0.20}Fe_{0.01}Ca_{0.01})_{\Sigma 1.00}(Co_{0.20}Ni_{0.06}Cu_{0.05}Zn_{0.01})_{\Sigma 0.32}(Mn_{0.99}Si_{0.01}P_{0.01})_{\Sigma 1.01}O_2(OH)_{2.91}$.

The origin of studied mineral association is interpreted as a product of the *in-situ* supergene alteration of the primary uranium mineralization in the environment near the present surface.

Key words: *metatorbernite, lithiophorite, powder X-ray diffraction data, unit-cell parameters, chemical composition, LA-ICP-MS, the Předbořice deposit, Czech Republic*

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