

Uranopilite a jáchymovite z uranového ložiska Horní Slavkov

Uranopilite and jáchymovite from the Horní Slavkov uranium deposit

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Abstract

Uranopilite from Horní Slavkov (Czech Republic) forms yellow crystalline aggregates of thick tabular crystals up to 0.5 mm. The aggregates seem to be a part of massive assemblages of uranyl supergene phases, so called „gum-mite”. Uranopilite is triclinic, with the space group $P-1$. The unit cell parameters refined from powder X-ray data are $a = 8.881(7) \text{ \AA}$, $b = 13.98(1) \text{ \AA}$, $c = 14.42(1) \text{ \AA}$, $\alpha = 97.08(6)^\circ$, $\beta = 98.99(6)^\circ$, $\gamma = 98.84(6)^\circ$ and $V = 1727(2) \text{ \AA}^3$. Chemical composition obtained from qualitative microanalysis matches well the composition of hydrated uranyl sulphate. In the powder diffraction pattern of uranopilite from Horní Slavkov few diffractions belonging to jáchymovite were found. Refined unit cell parameters of jáchymovite from composite pattern are $a = 18.52(5) \text{ \AA}$, $b = 9.228(4) \text{ \AA}$, $c = 13.49(3) \text{ \AA}$, $\beta = 125.6(2)^\circ$ and $V = 1874(7) \text{ \AA}^3$. We assumed uranopilite and jáchymovite from Horní Slavkov are topotactically intergrowth. Both phases represent supergene uranyl minerals formed as *in-situ* alteration products of primary uranium minerals.

Keywords: uranyl minerals, uranopilite, jáchymovite, X-ray diffraction, chemical composition, Horní Slavkov, Czech Republic