PŮVODNÍ PRÁCE/ORIGINAL PAPER

# Výskyt silikátů uranylu (weeksit, kasolit) na uranovém rudním výskytu Zborovy - Nicov u Plánice (Česká republika)

## Occurrence of uranyl silicates (weeksite, kasolite) at the uranium ore occurrence Zborovy - Nicov near Plánice (Czech Republic)

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### Abstract

An interesting uranyl silicate association (kasolite, weeksite) was found at the small uranium ore occurrence Zborovy - Nicov near Plánice (SW Bohemia, Czech Republic). Kasolite forms there abundant powder to massive hemispherical aggregates (pseudomorphoses after uraninite) in a strongly supergene altered gangue and veinlets up to 2 cm; it is yellow with orange or light brown tints. Kasolite is monoclinic, space group $P2_1/c$, the unit-cell parameters refined from powder X-ray data are: *a* 6.716(2), *b* 6.924(5), *c* 13.256(6) Å, *β* 104.17(3)° and *V* 597.6(5) Å$^3$. Chemical analyses yielded to the empirical formula $(Pb_{0.88}K_{0.05})_{\Sigma 0.93}(UO_2)_{1.02}(SiO_4)_{1.00} \cdot H_2O$. Weeksite was identified only at some samples; it forms light yellow (some with greenish tint) massive aggregates up to 1 - 3 cm in size, pseudomorphs after hemispherical aggregates of uraninite or irregular aggregates and veinlets in gangue. It is monoclinic, space group *C*2/*m*, with the unit-cell parameters: *a* 14.197(1), *b* 14.203(1), *c* 9.631(1) Å, *β* 111.624(7)° and *V* 1805.3(4) Å$^3$. Its empirical formula is $(K_{0.57}Ba_{0.33}Ca_{0.13}Al_{0.06}Co_{0.02}Pb_{0.01})_{\Sigma 1.12}(UO_2)_{2.02}Si_5O_{13} \cdot 4H_2O$. The results of spectroscopic (Raman, IR) study of both uranyl silicates and tentative assignment of spectra are given in the paper. Uranyl silicates originated there by weathering of primary uranium minerals in the conditions of supergene zone *in-situ*.

***Key words:*** *weeksite, kasolite, powder X-ray diffraction data, unit-cell parameters, chemical composition, Raman spectroscopy, infrared spectroscopy, Zborovy - Nicov near Plánice, Moldanubian, Czech Republic.*

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