Nálezy čejkaitu v důlní chodbě uranového ložiska Rožná, Česká republika

The finds of čejkaite at mine adit of the uranium deposit Rožná, Czech Republic

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Abstract

Rare supergene tetrasodium uranyl tricarbonate, čejkaite, was found at mine adit of 24th level of the uranium mine Rožná I, 1 km N of Dolní Rožínka, western Moravia, Czech Republic. It forms thin coatings at fragments of baryte gangue up to 2 x 3 cm, with uneven or fine crystalline surface and rarely hemispherical aggregates up to 0.5 mm in size. Čejkaite is partly translucent, it has light yellow colour and light yellow fluorescence under both short- and long-wave UV radiation. Green andersonite and light yellow green schröckingerite were found in the association. Čejkaite is triclinic, space group *P*1 or *P*-1, the unit-cell parameters refined from X-ray powder data are: *a* = 9.292(3), *b* = 9.292(3), *c* = 12.888(2) Å, α 90.77(2)°, β 90.78(2)°, γ 120.02(2)°, *V* = 963.1(8) Å^3. Chemical analyses yielded the average composition Na_2O 22.29, CaO 0.21, SiO_2 0.37, SO_3 0.25, UO_3 52.98, CO_2 (23.46), total (99.56) wt. %, corresponding to $(Na_{3.96}Ca_{0.02})_{\Sigma 3.98}(UO_2)_{1.02}[(CO_3)_{2.93}(SiO_4)_{0.03}(SO_4)_{0.01}]_{\Sigma 2.97}$ on the basis (Na+Ca+U) = 5 *apfu*. Chemical composition of studied čejkaite is compared with published and new analytical data for čejkaite from Jáchymov and synthetic trigonal $Na_4(UO_2)(CO_3)_3$. The origin of čejkaite at Rožná mine is interpreted as product of weathering of primary uranium minerals and its host rock in conditions of surface water regime within the abandoned mine adits.

***Key words**: čejkaite, tetrasodium uranyl tricarbonate, X-ray powder data, unit-cell parameters, chemical composition, Rožná uranium deposit, Czech Republic*