

Anomální výskyt metazeuneritu na hořícím uhelném odvalu v Bečkově u Trutnova (Česká republika)

An anomalous occurrence of metazeunerite at the burning coal mine dump at Bečkov near Trutnov (Czech Republic)

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Abstract

A hydrated uranyl copper arsenate, mineral metazeunerite, was found in the material from burned coal mine dump at the abandoned uranium and coal deposit Bečkov near Trutnov, north-eastern Bohemia, Czech Republic. Metazeunerite forms very light green irregular aggregates up to 1 mm composed by tiny (2 - 20 μm) tabular crystals in association with white anglesite aggregates and white gypsum crystals at fragments of caustic metamorphosed rocks. Metazeunerite is tetragonal, space group $P4/n$, the unit-cell parameters refined from X-ray powder diffraction data are: a 7.090(1), c 17.439(3) Å and V 876.6(3) Å³. Chemical analyses correspond to the empirical formula $(\text{Cu}_{0.78}\text{Al}_{0.21}\text{K}_{0.12}\text{Na}_{0.05}\text{Pb}_{0.05}\text{Zn}_{0.03}\text{Ca}_{0.01})_{\Sigma 1.25}(\text{UO}_2)_{2.00}[(\text{AsO}_4)_{1.42}(\text{PO}_4)_{0.34}(\text{SO}_4)_{0.18}(\text{SiO}_4)_{0.06}]_{\Sigma 2.00} \cdot 8\text{H}_2\text{O}$ on the basis $(\text{As}+\text{P}+\text{S}+\text{Si}) = 2$ apfu. A possibility that metazeunerite formed from hot gases in conditions of burning coal mine dump is discussed in the paper.

Key words: metazeunerite, powder X-ray diffraction data, chemical composition, burning coal mine dump, transport of uranium in hot gasses, Bečkov near Trutnov, Czech Republic