

Iriginit, chistryakovait a metazeunerit ze štoly 5. květen ve Vrchoslavi v Krušných horách (Česká republika)

Iriginite, chistryakovaite and metazeunerite from the 5. květen adit at Vrchoslav in Krušné hory Mts. (Czech Republic)

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Abstract

A rare uranium supergenne minerals iriginite and chistryakovaite were found in the abandoned adit called 5. květen in Vrchoslav, Krušné Hory Mts. (Czech Republic), in association with metazeunerite, ilsemannite, anglesite and gypsum, nearby the veins that contain molybdenite. Iriginite forms yellow to green-yellow spherical aggregates up to 0.2 mm in size; its refined orthorhombic unit-cell parameters are: a 6.700(2), b 12.733(4), c 11.518(4) Å and V 982.5(6) Å³. Chemical analyses of iriginite correspond to the empirical formula $(\text{UO}_2)(\text{Mo}^{6+}_{1.91}\text{Fe}_{0.06}\text{Cu}_{0.01})_{\Sigma 1.98}\text{O}_7 \cdot 3\text{H}_2\text{O}$. Chistryakovaite forms druses of whitish, light-yellow or greenish brittle tabular crystals having between 20 - 250 µm in size. Diffraction maxima of the highest observed intensities are: 9.3 (100), 4.90 (20), 4.59 (15), 3.80 (10) and 3.55 Å (10). Chemical analyses of chistryakovaite correspond to the empirical formula $(\text{Al}_{0.85}\text{Mg}_{0.04})_{\Sigma 0.89}(\text{UO}_2)_{1.90}[(\text{AsO}_4)_{1.68}(\text{PO}_4)_{0.32}]_{\Sigma 2.00}[\text{F}_{0.65}(\text{OH})_{0.35}]_{\Sigma 1.00} \cdot 6.5\text{H}_2\text{O}$. Metazeunerite, which has been found in the association, forms green tabular crystals having 0.1 - 0.2 mm in size and their aggregates; refined tetragonal unit-cell parameters are: a 7.096(3), b 17.4397(2) Å and V 878.2(6) Å³. Its chemical analyses correspond to the empirical formula $\text{Cu}_{0.64}(\text{UO}_2)_{1.89}[(\text{AsO}_4)_{1.97}(\text{PO}_4)_{0.03}]_{\Sigma 2.00} \cdot 8\text{H}_2\text{O}$.

Key words: iriginite, chistryakovaite, metazeunerite, X-ray powder data, chemical composition, Raman spectroscopy, 5. květen adit, Vrchoslav, Czech Republic

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