

Studium sekundárních fosfátů s allanpringitem a tvrdýitem z opuštěného ložiska železných rud Krušná hora u Berouna (Česká republika)

A study of secondary phosphates with allanpringite and tvrdýite from the abandoned iron deposit Krušná hora near Beroun (Czech Republic)

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Abstract

During the revision of old localities represented by historical samples in the mineralogical collection of the National Museum in Prague an interesting association of phosphate minerals in iron ores from abandoned iron deposit Krušná hora in Central Bohemia was discovered. The locality Krušná hora is situated about 12 km NW of Beroun (30 km WSW of Prague, Czech Republic) in an area of the Ordovician sedimentary rocks of the Teplá-Barrandian unit. Phosphates are bound to cracks and cavities in iron ores (mainly hematite). Most frequently observed phosphate minerals are: variscite and strengite, which occur there as white to transparent concentric aggregates up to 2 mm in size; fluorwavellite which forms white needle crystals up to 4 mm with contents of F up to 1.33 *apfu* and yellow to orange cacoxenite which occurs there as radial and concentric aggregates up to 1.5 mm in size with content of Al up to 5.80 *apfu*. Rarer phosphosiderite forms white to creamy altered radial aggregates up to 15 mm in size and spherical aggregates up to 1 mm in size, with content of Al (metavariscite component) up to 0.18 *apfu*. An extremely rare allanpringite forms there yellow powder and earthy aggregates in association with fluorwavellite; its empirical formula is $(\text{Fe}_{2.80}\text{Al}_{0.08})_{\Sigma 2.88}(\text{PO}_4)_{4/2}(\text{OH})_{2.67} \cdot 5\text{H}_2\text{O}$ and refined unit-cell parameters are a 9.778(2), b 7.352(3), c 17.883(4) Å, β 92.17(4)° and V 1281.1(7) Å³. Tvrdýite - a rare phosphate from beraunite group - was identified there, it forms green to yellow-green radial aggregates up to 4 mm in size in association with younger earthy yellow-orange jarosite; its empirical formula is $(\text{Fe}^{2+}_{0.99}\text{Mg}^{2+}_{0.01})_{\Sigma 1.00}(\text{Fe}^{3+})_{\Sigma 2.00}(\text{Al}_{2.18}\text{Fe}^{3+}_{0.68})_{\Sigma 2.86}(\text{PO}_4)_{4.00}(\text{OH})_{4.57}(\text{OH}_2)_4 \cdot 2\text{H}_2\text{O}$. Phosphate minerals assemblage of the iron sedimentary deposit Krušná hora near Beroun is unique due to occurrence of rare allanpringite and tvrdýite; increased Al contents in phosphate minerals from iron deposits are also remarkable.

Key words: *allanpringite, tvrdýite, cacoxenite, fluorwavellite, phosphosiderite, strengite, variscite, jarosite, phosphate occurrence, unit-cell parameters, chemical composition, Krušná hora, Nový Jáchymov, Beroun, Czech Republic*

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