

Pyromorfit, kintoreit a cerusit z historického Ag-Pb-Zn ložiska Ratibořské Hory (Česká republika)

Pyromorphite, kintoreite and cerussite from the historical Ag-Pb-Zn ore deposit Ratibořské Hory (Czech Republic)

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Abstract

Rich samples of supergene Pb minerals (pyromorphite, kintoreite and cerussite) were found at the historical Ag-Pb-Zn deposit Ratibořské Hory near Tábor (southern Bohemia, Czech Republic). Their occurrence is bound to cracks, cavities and quartz - opal veins in altered gneiss. Pyromorphite forms white, grey, yellow and green euhedral crystals up to 15 mm in size. Pyromorphite is hexagonal, space group $P6_3/m$ with unit-cell parameters refined from the X-ray powder diffraction data: a 9.979(4), c 7.3315(2) Å and V 632.3(2) Å³ (greenish yellow pyromorphite). Empirical formulas are: $Pb_{4.99}Ca_{0.22}[(PO_4)_{2.96}(AsO_4)_{0.03}(CrO_4)_{0.01}]_{\Sigma 3.00}Cl_{1.14}$ (yellow to green pyromorphite) and $Pb_{4.53}Ca_{0.59}[(PO_4)_{2.95}(AsO_4)_{0.25}]_{\Sigma 3.00}Cl_{1.12}$ (white to grey pyromorphites). Kintoreite was observed as orange-yellow crust composed of euhedral crystals up to 30 µm in size and as a yellow radial aggregates up to 100 µm. Kintoreite is trigonal, space group $R\bar{3}m$ with refined unit-cell parameters: a 7.316(7), c 16.854(1) Å, V 781.2(7) Å³. Its empirical formula is $(Pb_{1.08}Ca_{0.03})_{\Sigma 1.11}(Fe_{2.99}Al_{0.07}Cu_{0.01}Zn_{0.01}Cr_{0.03})_{\Sigma 3.11}[(PO_4)_{0.94}(AsO_4)_{0.04}(SO_4)_{0.02}]_{\Sigma 1.00}(PO_3OH)_{1.00}(OH)_{5.51}$. Cerussite forms beige up to 4 mm large subhedral crystals. Cerussite is orthorhombic, space group $Pm\bar{c}n$ with refined unit-cell parameters: a 5.1835(4), b 8.5011(7), c 6.1464(5) Å, V 270.84(4) Å³. An occurrence of Sn-rich phosphates (probably kintoreite and plumbogummite) with content of SnO₂ up to 16 wt. % is very interesting, these minerals will be part of following detailed research.

Key words: pyromorphite, kintoreite, cerussite, Sn-rich phosphates, unit-cell parameters, chemical composition, Staré hory, Ratibořské Hory deposit, Czech Republic

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