

Supergénne minerály z Novej Anton žily, Hodruša-Hámre, Štiavnické vrchy (Slovenská republika)

Supergene minerals from the Nová Anton vein, Hodruša-Hámre, Štiavnické vrchy Mts. (Slovak Republic)

MARTIN ŠTEVKO^{1)*}, PETER TUČEK²⁾, JIŘÍ SEJKORA³⁾ A RADANA MALÍKOVÁ³⁾

¹⁾Pribišova 15, 841 05 Bratislava, Slovenská republika; *e-mail: msminerals@gmail.com

²⁾Veľký Klíž 80, 958 45 Veľký Klíž, Slovenská republika

³⁾Mineralogicko-petrologické oddělení, Národní muzeum, Cirkusová 1740, 193 00 Praha 9 - Horní Počernice, Česká republika

ŠTEVKO M., TUČEK P., SEJKORA J., MALÍKOVÁ R. (2016) Supergénne minerály z Novej Anton žily, Hodruša-Hámre, Štiavnické vrchy (Slovenská republika). *Bull. mineral.-petrolog. Odd. Nár. Muz. (Praha) 24, 2, 183-193. ISSN: 1211-0329.*

Abstract

An unusually rich occurrence of supergene minerals, represented by azurite, baryte, cerussite, Zn-rich malachite, rosasite, smithsonite and wulfenite was recently identified at the subsurface parts of the Nová Anton epithermal ore vein near Hodruša-Hámre, Štiavnické vrchy Mts., Slovak Republic. Azurite is rare and it forms bright blue crystalline crusts, which consists of thin tabular crystals up to 2 mm. It is associated together with malachite, cerussite and smithsonite. Baryte occurs only infrequently as white, thin tabular crystals up to 5 mm growing on smithsonite. Cerussite is relatively abundant supergene mineral, especially in the proximity of relicts of primary galena. It forms clear to white, well-developed, acicular, prismatic or tabular crystals up to 1.2 cm or massive aggregates and rims up to 3 cm, which are often associated together with malachite and rosasite. Zn-rich malachite is very common supergene mineral at the studied locality and it occurs as pale green to greenish-blue hemispherical or radial aggregates up to 1 cm or crystalline crusts and coatings, which cover areas up to 100 cm². It is often associated with cerussite or smithsonite with rosasite, rarely also together with wulfenite or azurite. The unit-cell parameters of Zn-rich malachite refined from the powder X-ray diffraction data (for the monoclinic space group $P2_1/a$) are: $a = 9.459(5)$ Å, $b = 11.979(4)$ Å, $c = 3.219(1)$ Å, $\beta = 97.84(2)^\circ$ with $V = 361.3(3)$ Å³. It contain up to 0.18 *apfu* of Zn. Rosasite is relatively common species. It forms bluish-green to pale blue, hemispherical aggregates up to 7 mm with radial internal structure, which are often grouped to the botryoidal crusts covering areas up to 50 cm². Rosasite is often associated with smithsonite and Zn-rich malachite. Its refined unit-cell parameters (for the monoclinic space group $P2_1/a$) are: $a = 12.890(8)$ Å, $b = 9.342(7)$ Å, $c = 3.164(2)$ Å, $\beta = 110.26(2)^\circ$ with $V = 357.4(4)$ Å³. Two types of rosasite can be distinguished by chemical composition. Predominant is Zn-rich phase with the Cu/Zn molar ratio in the range of 1.24 - 1.66 (1.11 - 1.25 *apfu* Cu, 0.75 - 0.89 *apfu* Zn). Cu-rich rosasite is infrequent and its Cu/Zn molar ratio vary from 3.32 to 3.61 (1.54 - 1.57 *apfu* Cu, 0.43 - 0.46 *apfu* Zn). Smithsonite is very common mineral, which is associated mainly with Zn-rich malachite and rosasite. It occurs as white, pale green to pale blue botryoidal crusts, which often consists of rounded rhombohedral or scalenohedral crystals up to 3 mm in size. Except of major Zn, elevated content of Cu (up to 0.08 *apfu*), and minor contents of Ca (up to 0.02 *apfu*) and K, Pb, Mg (all up to 0.01 *apfu*) were detected in smithsonite. Wulfenite is relatively abundant species and it forms orange to yellow, dipyrarnidal, often hemihedral or tabular crystals up to 1 cm. It was identified by PXRD and its refined unit-cell parameters (for the tetragonal space group $I4_1/a$) are: $a = 5.438(5)$ Å, $c = 12.1160(7)$ Å and $V = 358.3(3)$ Å³. Its chemical composition is close to the theoretical end member, PbMoO₄. Well-developed supergene zones *in-situ*, especially with the abundance of supergene Cu and Zn carbonates are not typical for the epithermal ore veins in the Banská Štiavnica ore district. The origin of relatively well developed and rich supergene zone *in-situ* at the Nová Anton vein is directly linked with the fact, that upper parts of this vein are hosted in limestone.

Key words: supergene minerals, azurite, baryte, cerussite, malachite, rosasite, smithsonite, wulfenite, X-ray powder data, chemical composition, Nová Anton vein, Hodruša-Hámre, Slovak Republic

Obdrženo: 2. 10. 2016; přijato 25. 11. 2016