

Sekundární fosfáty z živcového ložiska Veselá hora u Domažlic (Česká republika)

Secondary phosphates from the feldspar deposit Veselá hora near Domažlice (Czech Republic)

LUBOŠ VRTIŠKA^{1)*}, PETR PAULIŠ^{1,2)}, ZDENĚK DOLNÍČEK¹⁾ A RADANA VRTIŠKOVÁ¹⁾

¹⁾Mineralogicko-petrologické oddělení, Národní muzeum, Cirkusová 1740, 193 00 Praha 9 - Horní Počernice;

*e-mail: lubos.vrtiska@nm.cz

²⁾Smišková 564, 284 01 Kutná Hora

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Abstract

Within the research of secondary phosphates of the Bohemian Massif, an interesting phosphate mineralization was found on a historical sample from the Veselá hora pegmatite deposit near Domažlice (Czech Republic). Jahnsite-(CaMnFe), jahnsite-(MnMnFe), frondelite, messelite-fairfieldite, mitridatite, Mn-rich fluorapatite and parafiniukite were detected in a sample collected in the year 1944, at the time of feldspar mining in the Veselá Hora deposit. Older jahnsite forms flat elongated yellow-orange crystals, up to 2 mm in size in cavities of the phosphate matrix; its chemical composition ranges from jahnsite-(CaMnFe) to jahnsite-(MnMnFe). Younger jahnsite-(CaMnFe) was observed in flat crystals with vitreous lustre and light brown-orange to pink-orange colour. The structural data for both generations are very similar. The mineral is monoclinic, space group $P2_1/a$, the unit-cell parameters refined from X-ray powder diffraction data are: a 15.009(3), b 7.1515(16), c 9.873(3) Å, β 111.1(5)° and V 988.4(3) Å³. Frondelite occurring in the cavity forms very dark green to black hemispherical aggregates, up to 1 mm in size, composed of radially arranged fibres. Frondelite is orthorhombic, space group $Bbmm$, the unit-cell parameters refined from X-ray powder diffraction data are: a 13.828(5), b 16.960(6), c 5.175(2) Å and V 1214.7(5) Å³. Members of the messelite-fairfieldite solid solution were observed as yellowish grains and aggregates associated with mitridatite, Mn-rich fluorapatite, parafiniukite, jahnsite-(CaMnFe) and quartz. It is triclinic, space group $P-1$, the unit-cell parameters refined from X-ray powder diffraction data are: a 5.476(4), b 5.763(3), c 6.566(2) Å, α 90.19(4)°, β 102.58(5)°, γ 108.45(4)° and V 988.4(3) Å³. The results of the WDS analyses and empirical formulas of all described phosphates are given in the paper.

Key words: secondary phosphates, jahnsite-(CaMnFe), jahnsite-(MnMnFe), frondelite, messelite, fairfieldite, mitridatite, Mn-rich fluorapatite, parafiniukite, X-ray diffraction data, unit-cell parameters, chemical composition, Veselá hora near Domažlice, Czech Republic

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