Babánekite $Cu_3(AsO_4)_2{\cdot}8H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. Prismatic crystals, to 1.5 mm, display {010}, {100}, {110}, {101}, and less frequently {001}; in hemispherical aggregates to 2 mm.

Physical Properties: *Cleavage*: Perfect on {010}. *Fracture*: n.d. *Tenacity*: n.d.
Hardness = 1.5-2.5 (by analogy to other As-dominant members of the vivianite group).
D(meas.) = n.d. D(calc.) = 3.192

Optical Properties: Transparent to translucent. *Color*: Pink to peach. *Streak*: Pale pink.
Luster: Vitreous.
Optical Class: n.d. *n*(calc.) = 1.6615

Cell Data: *Space Group*: *C*2/*m*. a = 10.1729(3) b = 13.5088(4) c = 4.7496(1) β = 105.399(2)°
Z = 2

X-ray Powder Pattern: Geister vein, Rovnost mine, Jáchymov, Western Bohemia, Czech Republic.
6.743 (100), 1.6862 (16), 3.231 (14), 7.936 (11), 2.715 (11), 2.3331 (10), 2.999 (5)

Chemistry:

	(1)	(2)
CoO	8.89	
NiO	4.06	
CuO	15.31	38.95
ZnO	10.87	
P_2O_5	0.16	
As_2O_5	39.79	37.52
SO_3	0.13	
H_2O	[24.78]	23.53
Total	103.99	100.00

(1) Geister vein, Rovnost mine, Jáchymov, Western Bohemia, Czech Republic; average of 11 electron microprobe analyses, H_2O calculated from stoichiometry; corresponds to $(Cu_{1.12}Zn_{0.78}Co_{0.69}Ni_{0.32})_{\Sigma=2.91}[(AsO_4)_{2.01}(PO_4)_{0.01}(SO_4)_{0.01}]_{\Sigma=2.03}{\cdot}8H_2O$. (2) $Cu_3(AsO_4)_2{\cdot}8H_2O$.

Mineral Group: Vivianite group.

Occurrence: In cavities and on surfaces of ore fragments from the oxidation zone of a hydrothermal Ag-As-Bi-Co-Ni-U vein-type deposit.

Association: Members of the lindackerite supergroup (lindackerite, veselovskýite, hloušekite, pradetite, klajite), lavendulan, gypsum, an X-ray amorphous Cu-Al-Si-O-H phase.

Distribution: From an old ore-stope ("lindackerite stope") on the Geister vein, third Geister level, Rovnost (former Werner) mine, Jáchymov, Western Bohemia, Czech Republic.

Name: Honors Senior Mining Counselor ("Oberbergrath") František Babánek (1836-1910), Czech mining expert, geologist and mineralogist who worked in the Jáchymov and Příbram mines.

Type Material: Department of Mineralogy and Petrology, National Museum, Prague, Czech Republic (P1P 8/2011).

References: (1) Plášil, J., P. Škácha, J. Sejkora, R. Škoda, M. Novák, F. Veselovský, and J. Hloušek (2017) Babánekite, $Cu_3(AsO_4)_2{\cdot}8H_2O$, from Jáchymov, Czech Republic - a new member of the vivianite group. J. Geosciences, 62(4), 261-270. (2) (2018) Amer. Mineral., 103, 1711-1712 (abs. ref. 1).