Ondrušite $CaCu_4(AsO_4)_2(AsO_3OH)_2 \cdot 10H_2O$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As crusts or aggregates of fine platy or lath-shaped crystals to 2 mm.

Physical Properties: *Cleavage*: Perfect on {001}. *Tenacity*: Very brittle. *Fracture*: Irregular. Hardness = ~2-3 D(meas.) = 3.26 (with inclusions) D(calc.) = 3.06

Optical Properties: Translucent. *Color*: White, whitish green, gray-green or apple-green. *Streak*: White to grayish white with a greenish tint. *Luster*: Vitreous. *Optical Class*: Biaxial (+). $\alpha' = 1.640(2)$ β = n.d. $\gamma' = 1.708(2)$ 2V(meas.) = n.d. 2V(calc.) = n.d. *Pleochroism*: Strong, colorless to light yellowish green.

Cell Data: *Space Group*: $P\bar{1}$. $a = 6.432(1)$ $b = 7.986(1)$ $c = 10.827(1)$ $\alpha = 85.75(1)°$ $\beta = 81.25(1)°$ $\gamma = 85.04(1)°$ Z = 1

X-ray Powder Pattern: Jáchymov (St. Joachimsthal) ore district, Czech Republic. 10.671 (100), 3.560 (18), 3.173 (13), 3.648 (11), 3.970 (10), 3.286 (10), 2.922 (10)

Chemistry:

	(1)	(2)
MgO	0.42	
CaO	5.27	5.43
NiO	0.03	
CoO	0.08	
CuO	29.90	30.83
PbO	0.16	
P_2O_5	0.33	
As_2O_5	44.92	44.53
H_2O	19.40	19.20
Total	100.51	100.00

(1) Jáchymov (St. Joachimsthal) ore district, Czech Republic; average electron microprobe analysis supplemented by IR spectroscopy, H_2O by TGA; corresponds to $(Ca_{0.96}Co_{0.01}Pb_{0.01})_{\Sigma=0.98}(Cu_{3.84}Mg_{0.11})_{\Sigma=3.95}[(AsO_4)_{1.73}(PO_4)_{0.05}]_{\Sigma=1.78}(AsO_3OH)_{2.26} \cdot 9.86H_2O$.
(2) $CaCu_4(AsO_4)_2(AsO_3OH)_2 \cdot 10H_2O$.

Mineral Group: Ondrušite-geigerite-chudobaite subgroup of the lindackerite group.

Occurrence: Secondary in the weathered zone of a vein-type Ag-As-Co-Ni-Bi-U hydrothermal deposit.

Association: Lindackerite, geminite, lavendulan, slavkovite, strashimirite, olivenite, picropharmacolite, köttigite.

Distribution: From the Geister vein, Rovnost mine and the Geschieber vein, Svornost mine, Jáchymov (St. Joachimsthal) ore district, Czech Republic.

Name: Honors mineralogist Ing. Petr *Ondruš* (b. 1960), Czech Geological Survey, Prague, Czech Republic.

Type Material: National Museum, Prague, Czech Republic (P1P 1/2008).

References: (1) Sejkora, J., J. Plášil, F. Veselovský, I. Císarová, and J. Hloušek (2011) Ondrušite, $CaCu_4(AsO_4)_2(AsO_3OH)_2 \cdot 10H_2O$, a new mineral species from the Jáchymov ore district, Czech Republic: Description and crystal-structure determination. Can. Mineral., 49, 885-897.