Pakhomovskyite $Co_3(PO_4)_2•8H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As tabular crystals, typically intergrown as spherulites and rosettes to 0.5 mm.

Physical Properties: *Cleavage*: Perfect on {010}. *Fracture*: Stepped. *Tenacity*: Flexible. *Hardness* = ~ 2 D(meas.) = 2.71(2) D(calc.) = 2.71 Dissolves in dilute HCl.

Optical Properties: Translucent. *Color*: Bright pink. *Streak*: Pink. *Luster*: Pearly (flakes) to dull. *Optical Class*: Biaxial (+). α = 1.581(2) β = 1.600(2) γ = 1.631(2) 2V(meas.) = 75-80° 2V(calc.) = 77° *Orientation*: $X = b$, $Y \wedge c$ = 22-23° in the obtuse β angle. *Dispersion*: Weak, $r < v$. *Pleochroism*: *Y* = pale pink, *Z* = pinkish gray.

Cell Data: *Space Group*: *C*2/*m*. a = 10.034(4) b = 13.341(3) c = 4.670(3) β = 105.02(2)° Z = 2

X-ray Powder Pattern: Kovdor massif, Kola Peninsula, Russia.
6.67 (100), 2.948 (70), 2.691 (70), 3.195 (60), 2.521 (60), 2.408 (60), 4.85 (40)

Chemistry:

	(1)	(2)
CoO	34.88	44.00
MgO	2.97	
MnO	2.41	
FeO	0.40	
NiO	0.53	
P_2O_5	27.95	27.78
H_2O	29.50	28.22
Total	98.64	100.00

(1) Kovdor massif, Kola Peninsula; average of 10 electron microprobe analyses, H_2O by Penfield method, corresponds to $(Co_{2.38}Mg_{0.38}Mn_{0.17}Ni_{0.04}Fe^{2+}_{0.03})_{\Sigma=2.99}(PO_4)_{2.01}•8.35H_2O$.
(2) $Co_3(PO_4)_2•8H_2O$.

Mineral Group: Vivianite group.

Occurrence: A low-temperature hydrothermal mineral formed by reactions between primary minerals and alkaline phosphate fluids in dolomite carbonatite cutting phoscorites.

Association: Bakhchisaraitsevite, bobierrite, magnetite, kovdorskite, rimkorolgite, juonniite, norsethite, chalcopyrite, phlogopite, pyrrhotite, pyrite.

Distribution: From the Iron-Ore complex, Kovdor massif, Kola Peninsula, Russia.

Name: Honors Yakov A. Pakhomovsky (b. 1948), a mineralogist of the Geological Institute, Kola Science Center, Russian Academy of Sciences, Apatity, Russia, for his work on the mineralogy of the alkaline massifs of the Kola Peninsula.

Type Material: The Mineralogical Museum, St. Petersburg State University and in the Geological and Mineralogical Museum, Geological Institute, Kola Science Center, Russian Academy of Sciences, Apatity, Russia.

References: (1) Yakovenchuk, V.N., G.Yu. Ivanyuk, Yu.A. Mikhailova, E.A. Selivanova, and S.V. Krivovichev (2006) Pakhomovskyite, $Co_3(PO_4)_2•8H_2O$, a new mineral species from Kovdor, Kola Peninsula, Russia. Can. Mineral., 44, 117-123. (2) (2006) Amer. Mineral., 91, 1948-1949 (abs. ref. 1).