Kovdorskite $Mg_2(PO_4)(OH)\cdot 3H_2O$

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Rough prismatic crystals, to 2 cm, with measurable {110}, {010}, {580}, {001}, {101}, {111}; granular.

Physical Properties: *Fracture:* Conchoidal to uneven. Hardness = 4 VHN = 420–450 D(meas.) = 2.28 D(calc.) = 2.30

Optical Properties: Transparent to opaque. *Color:* Colorless, pale rose, bright pink, pale blue, may be blue with pink terminations; colorless to pale rose in transmitted light.
Optical Class: Biaxial (–). *Orientation:* $Z \wedge c = 1°$–$3°$. *Dispersion:* $r > v$, very weak.
$\alpha = 1.528(2)$ $\beta = 1.542$ $\gamma = 1.549$ 2V(meas.) = 80°–82°

Cell Data: *Space Group:* $P2_1/c$. $a = 4.74(2)$ $b = 12.90(4)$ $c = 10.35(4)$
$\beta = 102°00(30)'$ Z = 4

X-ray Powder Pattern: Kovdor massif, Russia.
7.96 (100), 2.258 (64), 2.821 (59), 5.44 (46), 4.32 (36), 1.884 (27), 2.658 (25)

Chemistry:

	(1)	(2)
P_2O_5	32.95	33.07
MgO	37.34	37.55
H_2O	29.47	29.38
Total	99.76	100.00

(1) Kovdor massif, Russia. (2) $Mg_2(PO_4)(OH)\cdot 3H_2O$.

Occurrence: A very rare mineral in an explosive breccia pipe cutting an iron ore deposit in a carbonatized ultramafic-alkalic intrusive.

Association: Collinsite, magnesite, dolomite, hydrotalcite, apatite, magnetite, forsterite.

Distribution: From the Kovdor massif, Kola Peninsula, Russia.

Name: For the Kovdor massif, Russia, in which it was first found to occur.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 81408.

References: (1) Kapustin, Y.L., A.V. Bykova, and Z.V. Pudovkina (1980) Kovdorskite – a new mineral. Zap. Vses. Mineral. Obshch., 109, 341–347 (in Russian). (2) (1981) Amer. Mineral., 66, 437 (abs. ref. 1). (3) Ovchinnikov, V.E., L.P. Solov'eva, Z.V. Pudovkina, Y.L. Kapustin, and N.V. Belov (1980) The crystal structure of kovdorskite $Mg_2(PO_4)(OH)\cdot 3H_2O$. Doklady Acad. Nauk SSSR, 255, 351–354 (in Russian). (4) Ponomareva, E.V. and N.I. Krasnova (1990) New data on kovdorskite – $Mg_2(PO_4)(OH)\cdot 3H_2O$. Zap. Vses. Mineral. Obshch., 119(6), 92–100 (in Russian with English abs.).

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