Magnesium-chlorophoenicite $(Mg,Mn)_3Zn_2(AsO_4)(OH,O)_6$

Crystal Data: Monoclinic. *Point Group:* $2/m$. As prismatic crystals, stout to acicular, usually in radial aggregates and rosettes, to 12 mm.

Physical Properties: *Cleavage:* One perfect, parallel to elongation. *Tenacity:* [Brittle] (by analogy to chlorophoenicite). Hardness = [Soft.] D(meas.) = 3.45 D(calc.) = [3.36]

Optical Properties: Translucent. *Color:* Colorless to white; colorless in thin section. *Luster:* [Vitreous.]
Optical Class: Biaxial (+). *Orientation:* Y = elongation. *Dispersion:* $r < v$, strong.
$\alpha = 1.669$ $\beta = 1.672$ $\gamma = 1.677$ 2V(meas.) = Small.

Cell Data: *Space Group:* $C2/m$. $a = 22.99(1)$ $b = 3.236(2)$ $c = 7.299(3)$ $\beta = 106.5(1)°$
Z = 2

X-ray Powder Pattern: Franklin, New Jersey, USA; nearly identical to chlorophoenicite.
2.607 (100), 3.706 (50), 3.092 (40), 2.977 (25), 6.98 (20), 6.87 (20), 1.7560 (20)

Chemistry:

	(1)
P_2O_5	0.1
As_2O_5	20.7
FeO	0.0
MnO	15.9
ZnO	37.5
MgO	10.6
CaO	0.0
H_2O	[15.2]
Total	[100.0]

(1) Franklin, New Jersey, USA; by electron microprobe, H_2O by difference; corresponding to $(Mg_{1.39}Mn_{1.18}Zn_{0.43})_{\Sigma=3.00}Zn_{2.00}(OH)_6[As_{0.42}H_{0.5}(OH,O)_3]_2$.

Occurrence: A very rare mineral, in open veinlets cutting a metamorphosed stratiform zinc orebody.

Association: Willemite, zincite, andradite, franklinite, hodgkinsonite, barite, calcite.

Distribution: From Franklin, Sussex Co., New Jersey, USA.

Name: For its *magnesium* content and similarity to *chlorophoenicite*.

Type Material: Harvard University, Cambridge, Massachusetts, USA, 92803.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 780. (2) Dunn, P.J. (1981) Magnesium-chlorophoenicite redefined and new data on chlorophoenicite. Can. Mineral., 19, 333–336. (3) Dunn, P.J. (1995) Franklin and Sterling Hill, New Jersey. No publisher, n.p., 671–672. (4) Bayliss, P. and S. St. J. Warne (1987) Powder X-ray diffraction data of magnesium-chlorophoenicite. Powder Diffraction, 2(4), 225–226.