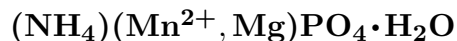


# Niahite



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**Crystal Data:** Orthorhombic. *Point Group:*  $mm2$ . Rarely as individual crystals; in radiating and subparallel aggregates of crystals, to 0.5 mm.

**Physical Properties:** Hardness = n.d.  $D(\text{meas.}) = 2.39$   $D(\text{calc.}) = 2.437$

**Optical Properties:** Semitransparent. *Color:* Pale orange; colorless in thin section. *Streak:* White.

*Optical Class:* Biaxial (-).  $\alpha = 1.582(2)$   $\beta = 1.604(2)$   $\gamma = 1.609(2)$   $2V(\text{meas.}) = 54^\circ$   
 $2V(\text{calc.}) = 50^\circ$

**Cell Data:** *Space Group:*  $Pmn2_1$ .  $a = 5.68$   $b = 8.78$   $c = 4.88$   $Z = 2$

**X-ray Powder Pattern:** Niah Great Cave, Sarawak, Malaysia.  
8.82 (10), 2.832 (9), 2.845 (8), 4.267 (6), 4.79 (5), 3.412 (4), 2.300 (4)

Chemistry:	(1)
P <sub>2</sub> O <sub>5</sub>	37.83
MnO	27.21
MgO	4.19
CaO	1.99
(NH <sub>4</sub> ) <sub>2</sub> O	12.9
H <sub>2</sub> O	11.88
Total	96.00

(1) Niah Great Cave, Sarawak, Malaysia; by electron microprobe, total Mn as MnO, N, H, and P by microchemical methods; corresponding to  $(\text{NH}_4)_{0.93}(\text{Mn}_{0.72}\text{Mg}_{0.20}\text{Ca}_{0.06})_{\Sigma=0.98}\text{P}_{1.00}\text{O}_{3.95} \cdot 1.23\text{H}_2\text{O}$ .

**Occurrence:** A rare mineral, derived from the breakdown of bat guano (Niah Great Cave, Sarawak, Malaysia).

**Association:** Newberyite, collophane, hannayite, struvite, variscite (Niah Great Cave, Sarawak, Malaysia); newberyite, sussexite, pyrochroite (Sterling Hill, New Jersey, USA).

**Distribution:** From the Niah Great Cave, Sarawak, Malaysia. At Sterling Hill, Ogdensburg, Sussex Co., New Jersey, USA. In the Taguchi mine, Shidara, Aichi Prefecture, Japan.

**Name:** For the place of its first-noted occurrence, the Niah Great Cave, Malaysia.

**Type Material:** Malaysian Geological Survey, Kuching (Sarawak), Sarawak, Malaysia; Bureau of Mineral Resources, Canberra; Government Chemical Laboratories, Perth, Australia, MDC5089.

**References:** (1) Bridge, P.J. and B.W. Robinson (1983) Niahite – a new mineral from Malaysia. *Mineral. Mag.*, 47, 79–80. (2) (1984) *Amer. Mineral.*, 69, 408 (abs. ref. 1). (3) Dunn, P.J. (1995) Franklin and Sterling Hill, New Jersey. No publisher, n.p., 674.