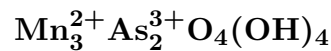


# Manganarsite



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**Crystal Data:** Hexagonal or pseudo-hexagonal. *Point Group:*  $\bar{3}2/m$ ,  $3m$ , or  $32$ . As platy hexagonal crystals, imperfect, to 1 mm; fine-grained, massive. *Twining:* Lamellar, two sets at  $\sim 60^\circ$ , observed optically.

**Physical Properties:** *Cleavage:* {0001}, perfect. Hardness =  $\sim 3$  D(meas.) = 3.64  
D(calc.) = 3.60

**Optical Properties:** Semitransparent. *Color:* Pale pinkish brown. *Streak:* Pale pink.  
*Luster:* Vitreous.

*Optical Class:* Biaxial (-). *Orientation:*  $X \perp \{0001\}$  cleavage. *Dispersion:*  $r > v$ .  $\alpha = 1.78$   
 $\beta = 1.81$   $\gamma = 1.81$   $2V(\text{meas.}) = 28^\circ\text{--}43^\circ$

**Cell Data:** *Space Group:*  $P\bar{3}1m$ ,  $P31m$ ,  $P3m1$ , or  $P312$ .  $a = 11.451(6)$   $c = 7.252(6)$   
 $Z = 4$

**X-ray Powder Pattern:** Långban, Sweden.

2.662 (100), 1.845 (70), 1.652 (60), 3.62 (50), 1.531 (40), 5.74 (30), 4.49 (30)

Chemistry:	(1)	(2)
As <sub>2</sub> O <sub>3</sub>	44.3	44.29
Sb <sub>2</sub> O <sub>3</sub>	1.3	
FeO	1.8	
MnO	43.1	47.64
MgO	1.7	
H <sub>2</sub> O	7.7	8.07
Total	99.9	100.00

(1) Långban, Sweden; by electron microprobe, Fe<sup>2+</sup> determined by microchemical tests, H<sub>2</sub>O by TGA; corresponding to (Mn<sub>2.74</sub>Mg<sub>0.19</sub>Fe<sub>0.11</sub>) $\Sigma=3.04$ (As<sub>2.02</sub>Sb<sub>0.04</sub>) $\Sigma=2.06$ O<sub>4.21</sub>(OH)<sub>3.85</sub>.

(2) Mn<sub>3</sub>As<sub>2</sub>O<sub>4</sub>(OH)<sub>4</sub>.

**Occurrence:** Coating armangite, and filling fractures, in a museum specimen from a metamorphosed Fe–Mn deposit.

**Association:** Calcite, barite, hematite, fluorite, armangite.

**Distribution:** From Långban, Värmland, Sweden.

**Name:** For MANGANEse and ARSEnic in the composition.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, R5795.

**References:** (1) Peacor, D.R., P.J. Dunn, W.B. Simmons, and F.J. Wicks (1986) Arsenites related to layer silicates: manganarsite, the arsenite analogue of manganpyrosmalite, and unnamed analogues of friedelite and schallerite from Långban, Sweden. *Amer. Mineral.*, 71, 1517–1521.