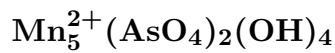


# Arsenoclasite



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**Crystal Data:** Orthorhombic. *Point Group:* 222. Crystals rare, to 5 mm; granular or massive.

**Physical Properties:** *Cleavage:* Perfect on {010}. Hardness = 5–6 D(meas.) = 4.16 D(calc.) = 4.21

**Optical Properties:** Translucent. *Color:* Red, dark orange-brown.

*Optical Class:* Biaxial (-). *Orientation:* X = b; Y = a; Z = c.  $\alpha = 1.787$   $\beta = 1.810$   $\gamma = 1.816$   $2V(\text{meas.}) = 53^\circ 26'$

**Cell Data:** *Space Group:*  $P2_12_12_1$ .  $a = 18.29(2)$   $b = 5.75(1)$   $c = 9.31(2)$   $Z = 4$

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

2.933 (100), 2.739 (75), 4.55 (70), 2.835 (70), 3.057 (60), 1.631 (50), 4.92 (45)

## Chemistry:

	(1)	(2)	(3)
SO <sub>3</sub>		0.23	
P <sub>2</sub> O <sub>5</sub>		1.37	
As <sub>2</sub> O <sub>5</sub>	36.96	34.10	37.04
Al <sub>2</sub> O <sub>3</sub>		0.17	
FeO	trace	0.03	
MnO	55.01	55.74	57.16
CuO	0.57	0.05	
ZnO		0.11	
PbO		0.15	
MgO	0.87		
BaO	0.11		
H <sub>2</sub> O	5.90	[5.85]	5.80
Total	99.42	[97.80]	100.00

(1) Långban, Sweden. (2) Iron Monarch quarry, Australia; by electron microprobe, H<sub>2</sub>O calculated for 2H<sub>2</sub>O; corresponding to Mn<sub>4.74</sub>Al<sub>0.02</sub>[(As<sub>0.90</sub>P<sub>0.06</sub>S<sub>0.01</sub>)<sub>Σ=0.97</sub>O<sub>4</sub>]<sub>2</sub>(OH)<sub>4</sub>.

(3) Mn<sub>5</sub>(AsO<sub>4</sub>)<sub>2</sub>(OH)<sub>4</sub>.

**Occurrence:** A rare fissure mineral in a metamorphosed Fe–Mn orebody (Långban, Sweden); in a sedimentary Fe–Mn deposit (Iron Monarch quarry, Australia).

**Association:** Sarkinite, adelite, allactite, calcite, dolomite, hausmannite (Långban, Sweden); gatehouseite, shigaite, hematite, hausmannite, barite, manganian ferroan calcite (Iron Monarch quarry, Australia).

**Distribution:** At Långban, Värmland, Sweden. Crystallized from the Iron Monarch quarry, Iron Knob, South Australia.

**Name:** From *arsenic* and the Greek for *breaking*, for its excellent cleavage.

**Type Material:** Swedish Museum of Natural History, Stockholm, Sweden; The Natural History Museum, London, England, 1931,59.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 801–802. (2) Moore, P.B. (1967) Contributions to Swedish mineralogy: I. Studies on the basic arsenates of manganese: retzian, hemafibrite, synadelphite, arsenoclasite, arseniopleite, and akrochordite. *Arkiv Mineral. Geol.*, 4(5), 425–444. (3) Moore, P.B. and J. Molin-Case (1971) Crystal chemistry of the basic manganese arsenates: V. Mixed manganese coordination in the atomic arrangement of arsenoclasite. *Amer. Mineral.*, 56, 1539–1552. (4) (1972) *Amer. Mineral.*, 57, 593 (erratum to ref. 3). (5) Pring, A. and W.D. Birch (1993) Gatehouseite, a new manganese hydroxy phosphate from Iron Monarch, South Australia. *Mineral. Mag.*, 57, 309–313.

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