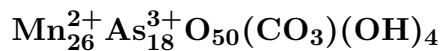


Armangite



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Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. As tiny short hexagonal prisms, terminated by a trigonal pyramid. *Twinning:* On $\{11\bar{2}0\}$.

Physical Properties: *Cleavage:* $\{0001\}$, fair to poor. Hardness = ~ 4 D(meas.) = [4.43] (calculated from material with 12% admixed carbonate). D(calc.) = 4.406

Optical Properties: Opaque, transparent in thin fragments. *Color:* Black to pale brown; yellow to brown in transmitted light. *Streak:* Brown.

Optical Class: Uniaxial (-). $\omega = 2.01$ $\epsilon = 1.99$

Cell Data: *Space Group:* $P\bar{3}$. $a = 13.491(2)$ $c = 8.855(1)$ $Z = 1$

X-ray Powder Pattern: Långban, Sweden. (ICDD 19-780).

2.762 (100), 2.94 (70), 2.428 (70), 1.759 (60), 3.92 (50), 1.676 (50), 1.459 (50)

Chemistry:

	(1)	(2)	(3)
As ₂ O ₃	42.92	48.82	48.06
Sb ₂ O ₃	0.40	0.46	
FeO	2.19	2.49	
MnO	45.06	47.06	49.78
PbO	0.32	0.36	
MgO	0.49		
CaO	2.83		
H ₂ O	0.71	0.81	0.97
CO ₂	5.08		1.19
insol.	0.20		
Total	100.20	[100.00]	100.00

(1) Långban, Sweden; average of three analyses. (2) Do.; recalculated to 100% after deduction of insoluble and (Ca, Mn, Mg)CO₃ 3.69%; essential CO₃ however was found by crystal-structure analysis and confirmed qualitatively by electron microprobe. (3) Mn₂₆As₁₈O₅₀(CO₃)(OH)₄.

Occurrence: On a museum specimen collected from a metamorphosed Fe–Mn deposit.

Association: Calcite, dolomite, barite, hematite, fluorite, manganarsite, hausmannite.

Distribution: From Långban, Värmland, Sweden.

Name: For ARsenic and MANGanese in the composition.

Type Material: Swedish Museum of Natural History, Stockholm, Sweden, Flink U71; National Museum of Natural History, Washington, D.C., USA, R5795.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1031–1032. (2) Moore, P.B. and T. Araki (1979) Armangite, Mn₂₆²⁺[As₆³⁺(OH)₄O₁₄][As₆³⁺O₁₈]₂[CO₃], a fluorite derivative structure. Amer. Mineral., 64, 748–757.