

## Wiklundite



**Crystal Data:** Hexagonal. *Point Group:*  $\bar{3} 2/m$ . As radiating, sheaf-like aggregates, to 1 mm, of thin and slightly bent, lath-shaped crystals.

**Physical Properties:** *Cleavage:* Perfect on {001}. *Tenacity:* Brittle. *Fracture:* Irregular. Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.072

**Optical Properties:** Translucent. *Color:* Brownish red to dark brown. *Streak:* Pale yellowish brown. *Luster:* Resinous to submetallic.

*Optical Class:* Uniaxial (-). Orange-red in plane-polarized transmitted light; non pleochroic.  $n(\text{calc.}) = 1.85$

**Cell Data:** *Space Group:*  $R\bar{3}c$ .  $a = 8.257(2)$   $c = 126.59(4)$   $Z = 6$

**X-ray Powder Pattern:** Långban, Filipstad, Värmland, Sweden. 2.882 (100), 2.805 (90), 4.128 (83), 3.098 (81), 2.384 (70), 4.052 (58), 2.320 (56)

<b>Chemistry:</b>	(1)
SiO <sub>2</sub>	11.17
Al <sub>2</sub> O <sub>3</sub>	0.06
Fe <sub>2</sub> O <sub>3</sub>	4.46
As <sub>2</sub> O <sub>5</sub>	[0.75]
As <sub>2</sub> O <sub>3</sub>	[6.81]
MnO	47.89
ZnO	0.78
CaO	0.09
PbO	14.48
Cl	6.65
H <sub>2</sub> O	[5.18]
<u>- O = Cl<sub>2</sub></u>	<u>1.50</u>
Total	97.11

(1) Långban, Filipstad, Värmland, Sweden; average of 8 electron microprobe analyses supplemented by FTIR and Mössbauer spectroscopy, H<sub>2</sub>O calculated so that (OH+Cl) = 24 apfu, As<sub>2</sub>O<sub>3</sub>/As<sub>2</sub>O<sub>5</sub> based on structure refinement; corresponds to  $\text{Pb}_{2.04}(\text{Mn}^{2+}_{2.70}\text{Zn}_{0.30})_{\Sigma=3.00}(\text{Fe}^{3+}_{1.76}\text{Al}_{0.04}\text{Mn}^{2+}_{0.20})_{\Sigma=2.00}(\text{Mn}^{2+}_{18.33}\text{Mg}_{0.23}\text{Ca}_{0.05})_{\Sigma=18.61}\text{As}^{3+}_{2.16}(\text{Si}_{5.85}\text{As}^{5+}_{0.21})_{\Sigma=6.06}\text{O}_{30}(\text{OH})_{18.10}\text{Cl}_{5.90}$ .

**Occurrence:** In a Fe-Mn-(Ba-As-Pb-Sb) deposit in dolomite-rich skarn, probably formed shortly after peak metamorphism at temperatures above 600° C and pressures < 3.5 kbars.

**Association:** Tephroite, mimetite, turneaureite, johnbaumite, jacobsite, barite, native lead, filipstadite, parwelite, manganiferous calcite.

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

**Name:** Honors Swedish mineral collectors Markus Wiklund (b.1969) and Stefan Wiklund (b. 1972), the brothers who jointly found the specimen containing the mineral.

**Type Material:** Department of Geosciences, Swedish Museum of Natural History, Stockholm, Sweden (NRM#20040085).

**References:** (1) Cooper, M.A., F.C. Hawthorne, J. Langhof, U. Hålenius, and D. Holtstam (2017) Wiklundite, ideally  $\text{Pb}_2^{[4]}(\text{Mn}^{2+}, \text{Zn})_3(\text{Fe}^{3+}, \text{Mn}^{2+})_2(\text{Mn}^{2+}, \text{Mg})_{19}(\text{As}^{3+}\text{O}_3)_2[(\text{Si}, \text{As}^{5+})\text{O}_4]_6(\text{OH})_{18}\text{Cl}_6$ , a new mineral from Långban, Filipstad, Värmland, Sweden: Description and crystal structure. *Mineral. Mag.*, 81(4), 841-855. (2) (2018) *Amer. Mineral.*, 103, 336 (abs. ref. 1).