**Wiklundite**

\[
Pb_2^{4[\text{Mn}^{2+},\text{Zn}_3(\text{Fe}^{3+},\text{Mn}^{2+})_2(\text{Mn}^{2+},\text{Mg})_{19}(\text{As}^{3+}\text{O}_3)_2][(\text{Si},\text{As}^{5+})\text{O}_4]_6(\text{OH})_{18}\text{Cl}_6
\]

**Crystal Data:** Hexagonal.  
**Point Group:** 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(calc.) =** 1.85

**Cell Data:** 
**Space Group:** R̅3 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)

**Chemistry:** 
\[
\begin{align*}
\text{SiO}_2 & = 11.17 \\
\text{Al}_2\text{O}_3 & = 0.06 \\
\text{Fe}_2\text{O}_3 & = 4.46 \\
\text{As}_2\text{O}_3 & = [0.75] \\
\text{As}_2\text{O}_3 & = [6.81] \\
\text{MnO} & = 47.89 \\
\text{ZnO} & = 0.78 \\
\text{CaO} & = 0.09 \\
\text{PbO} & = 14.48 \\
\text{Cl} & = 6.65 \\
\text{H}_2\text{O} & = [5.18] \\
-\text{O} & = \text{Cl}_2 \\
\text{Total} & = 97.11
\end{align*}
\]

(1) Långban, Filipstad, Värmland, Sweden; average of 8 electron microprobe analyses supplemented by FTIR and Mössbauer spectroscopy, H2O calculated so that (OH+Cl) = 24 apfu, As2O3/As2O5 based on structure refinement; corresponds to Pb2.04(Mn2+2.70Zn0.30)2−3.00(Fe3+1.76Al0.04Mn2+0.20)2−2.00(Mn2+18.33Mg0.23Ca0.05)2−18.61As3+2.16(As8.85As5+0.21)2−6.06O3(0H)18.10Cl5.90

**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. Hälenius, and D. Holtstam (2017) Wiklundite, ideally Pb2[\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.  