Wiklundite

$Pb_2^{[4]}(Mn^{2+},Zn)_3(Fe^{3+},Mn^{2+})_2(Mn^{2+},Mg)_{19}(As^{3+}O_3)_2[(Si,As^{5+})O_4]_6(OH)_{18}Cl_6$

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(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)

Chemistry:

	(1)
SiO_2	11.17
Al_2O_3	0.06
Fe_2O_3	4.46
As_2O_5	[0.75]
As_2O_3	[6.81]
MnO	47.89
ZnO	0.78
CaO	0.09
PbO	14.48
Cl	6.65
H_2O	[5.18]
$– O = Cl_2$	1.50
Total	97.11

(1) Långban, Filipstad, Värmland, Sweden; average of 8 electron microprobe analyses supplemented by FTIR and Mössbauer spectroscopy, H_2O calculated so that (OH+Cl) = 24 apfu, As_2O_3/As_2O_5 based on structure refinement; corresponds to $Pb_{2.04}(Mn^{2+}_{2.70}Zn_{0.30})_{\Sigma=3.00}(Fe^{3+}_{1.76}Al_{0.04}Mn^{2+}_{0.20})_{\Sigma=2.00}(Mn^{2+}_{18.33}Mg_{0.23}Ca_{0.05})_{\Sigma=18.61}As^{3+}_{2.16}(Si_{5.85}As^{5+}_{0.21})_{\Sigma=6.06}O_{30}(OH)_{18.10}Cl_{5.90}$.

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 $Pb_2^{[4]}(Mn^{2+},Zn)_3(Fe^{3+},Mn^{2+})_2(Mn^{2+},Mg)_{19}(As^{3+}O_3)_2[(Si,As^{5+})O_4]_6(OH)_{18}Cl_6$, 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).