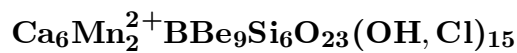


Wawayandaite



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Crystal Data: Monoclinic. *Point Group:* $2/m$ or m . Rarely as sharp, thin crystals, to 0.1 mm; commonly strongly curved in three dimensions; as fine-grained aggregates. *Twinning:* On $\{100\}$, probably universal.

Physical Properties: *Cleavage:* Perfect on $\{100\}$. *Tenacity:* Brittle; curved crystals are flexible. Hardness = ~ 1 in aggregates. $D(\text{meas.}) = \sim 3.0$ $D(\text{calc.}) = 2.98$

Optical Properties: Transparent to opaque. *Color:* Colorless to white. *Streak:* White. *Luster:* Pearly to dull.

Optical Class: Biaxial (-). *Orientation:* $Y = b$; $Z = c$; $X \wedge a = 11.5^\circ$. *Dispersion:* $r < v$, strong. $\alpha = [1.619]$ $\beta = 1.631(1)$ $\gamma = 1.641(1)$ $2V(\text{meas.}) = 85^\circ$

Cell Data: *Space Group:* $P2/c$ or Pc . $a = 15.59(2)$ $b = 4.87(1)$ $c = 18.69(4)$
 $\beta = 101.84(15)^\circ$ $Z = 2$

X-ray Powder Pattern: Franklin, New Jersey, USA.
3.157 (100), 15.1 (90), 3.001 (70), 2.626 (70), 2.718 (60), 2.249 (50)

Chemistry:	(1)
SiO ₂	28.2
B ₂ O ₃	3.8
MnO	9.8
ZnO	1.1
BeO	17.6
MgO	1.9
CaO	24.8
Cl	3.0
H ₂ O ⁺	9.6
-O = Cl ₂	0.7
Total	99.1

(1) Franklin, New Jersey, USA; by electron microprobe, B and Be by ion microprobe, H₂O by TGA-EGA; corresponds to $\text{Ca}_{5.56}\text{Mn}_{1.74}\text{Mg}_{0.60}\text{Zn}_{0.17}\text{B}_{1.38}\text{Be}_{8.86}\text{Si}_{5.90}\text{O}_{23.54}$
 $[(\text{OH})_{13.40}\text{Cl}_{1.06}]_{\Sigma=14.46}$.

Occurrence: A late-stage vein mineral on willemite-franklinite ore in a metamorphosed stratiform zinc deposit.

Association: Willemite, friedelite, andradite, hodgkinsonite, cahnite, calcite.

Distribution: From Franklin, Sussex Co., New Jersey, USA.

Name: From *wawayanda*, meaning *many or several windings* in the language of the Lenni Lenape Indians, early inhabitants of the Franklin area, in allusion to the grossly curved and winding habit of most crystals.

Type Material: National Museum of Natural History, Washington, D.C., USA, R5869, 93391; Royal Ontario Museum, Toronto, Canada, M44227.

References: (1) Dunn, P.J., D.R. Peacor, J.D. Grice, F.J. Wicks, and P.H. Chi (1990) Wawayandaite, a new calcium manganese beryllium boron silicate from Franklin, New Jersey. *Amer. Mineral.*, 75, 405–408.