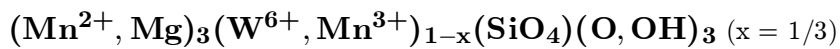


Welinite

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Crystal Data: Hexagonal. *Point Group:* 3. As sections of crystals, to 2 cm.**Physical Properties:** *Cleavage:* Poor to distinct on {001}. *Tenacity:* Brittle. *Hardness* = 4
D(meas.) = 4.47 D(calc.) = 4.41**Optical Properties:** Transparent in thin fragments. *Color:* Deep red-brown to reddish black.
Streak: Pale reddish brown. *Luster:* Resinous.*Optical Class:* Uniaxial (+); anomalously biaxial. *Absorption:* $E > O$. $\omega = 1.864$ $\epsilon = 1.88$
2V(meas.) = Small.**Cell Data:** *Space Group:* P3. $a = 8.155(7)$ $c = 4.785(5)$ $Z = 2$ **X-ray Powder Pattern:** Långban, Sweden.

1.782 (100), 3.102 (80), 2.332 (80), 4.07 (60), 1.5438 (60), 7.00 (50), 2.840 (40)

Chemistry:

	(1)
SiO ₂	15.7
Fe ₂ O ₃	0.8
WO ₃	21.7
Sb ₂ O ₅	1.6
As ₂ O ₅	0.0
V ₂ O ₅	0.0
MnO	55.5
MgO	2.5
H ₂ O ⁺	2.9
Total	100.7

(1) Långban, Sweden; by electron microprobe, H₂O by TGA; corresponds to Mn_{3.00}²⁺W_{0.36}⁶⁺
Mg_{0.24}Sb_{0.04}⁵⁺Fe_{0.04}³⁺Si_{1.00}[O, (OH)]_{Σ~7}.**Occurrence:** In small amounts, as fillings in fissures with other minerals cutting hausmannite ore (Långban, Sweden).**Association:** Adelite, sarkinite, barite, calcite (Långban, Sweden).**Distribution:** From Långban, Värmland, Sweden. In the Taguchi mine, ??, Japan.**Name:** For Dr. Eric Welin, mineralogist and geochronologist, Swedish Museum of Natural History, Stockholm, Sweden.**Type Material:** Swedish Museum of Natural History, Stockholm, Sweden, 532157; National Museum of Natural History, Washington, D.C., USA, 120067.**References:** (1) Moore, P.B. (1967) Welinite, a new mineral from Långban. *Arkiv Mineral. Geol.*, 4, 407–411. (2) (1968) *Amer. Mineral.*, 53, 1064 (abs. ref. 1). (3) Moore, P.B. (1968) The crystal structure of welinite, (Mn⁴⁺, W)_{<1}(Mn²⁺, W, Mg)_{<3}Si(O, OH)₇. *Arkiv Mineral. Geol.*, 4, 459–466. (4) Dunn, P.J., D.R. Peacor, R.C. Erd, and R.A. Ramik (1986) Franciscanite and örebroite, two new minerals from California and Sweden, related to redefined welinite. *Amer. Mineral.*, 71, 1522–1526.