Sverigeite $NaMn^{2+}MgSn^{4+}Be_2Si_3O_{12}(OH)$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. In well-formed complex crystals, to 2 mm, elongated ‖ [001]; as irregular platy segregations.

Physical Properties: *Cleavage:* {010}, perfect; two other directions, distinct. Hardness = ∼6.5 D(meas.) = 3.60 D(calc.) = 3.61

Optical Properties: Translucent. *Color:* Yellow; in transmitted light, pale yellow to yellow. *Streak:* Light yellow. *Luster:* Vitreous on cleavages and fractures, dull on crystal faces. *Optical Class:* Biaxial (+). *Pleochroism:* Moderate; X = yellow; $Y \simeq Z$ = pale yellow. *Orientation:* $Z = b$. *Dispersion:* $r > v$, strong. *Absorption:* $X > Y \simeq Z$. $\alpha = 1.678(4)$ $\beta = 1.684(4)$ $\gamma = 1.699(4)$ 2V(meas.) = 67(4)°

Cell Data: *Space Group: Imma.* $a = 10.815(8)$ $b = 13.273(8)$ $c = 6.818(6)$ Z = 4

X-ray Powder Pattern: Långban mine, Sweden.
2.884 (100), 2.826 (90), 5.77 (70), 4.35 (70), 2.98 (60), 2.644 (60), 6.63 (50)

Chemistry:

	(1)
SiO_2	33.5
SnO_2	28.5
FeO	0.3
MnO	11.8
ZnO	1.2
BeO	9.7
MgO	8.1
Na_2O	6.1
H_2O	1.2
Total	100.4

(1) Långban mine, Sweden; by electron microprobe; Be by AA, H_2O by the Penfield method; corresponds to $Na_{1.04}(Mg_{1.06}Mn^{2+}_{0.88}Zn_{0.08}Fe^{2+}_{0.02})_{\Sigma=2.04}Sn_{1.00}Be_{2.06}Si_{2.96}O_{12.19}H_{0.71}$.

Occurrence: Found on a mine dump; possibly part of a vein assemblage.

Association: Mimetite, jacobsite, manganoan calcite, amphibole.

Distribution: From Långban, Värmland, Sweden.

Name: For the country where the mineral was found, Sweden, *Sverige* in Swedish.

Type Material: National Museum of Natural History, Washington, D.C., USA, 160023, 160341.

References: (1) Dunn, P.J., D.R. Peacor, W.B. Simmons, and R.V. Gaines (1984) Sverigeite, a new tin beryllium silicate mineral from Långban, Värmland, Sweden. Geol. Fören. Förhandl. Stockholm, 106, 175–177. (2) (1985) Amer. Mineral., 70, 1332 (abs. ref. 1). (3) Rouse, R.C., D.R. Peacor, and G.W. Metz (1989) Sverigeite, a structure containing planar NaO_4 groups and chains of 3- and 4-membered beryllosilicate rings. Amer. Mineral., 74, 1343–1350.