Oxystannomicrolite

\[ \text{Sn}_2\text{Ta}_2\text{O}_6\text{O} \]

Crystal Data: Cubic. \textit{Point Group}: 4/m \overline{3} 2/m. As rims, to 20 \( \mu \)m, surrounding ferrowodginite crystals, which may be almost completely replaced.

Physical Properties: Fracture: [Uneven] (by analogy to pyrochlore group). Tenacity: [Brittle.]Hardness = \( > 7 \)  \( \text{D(meas.)} = 8.34 \) (synthetic \( \text{Sn}_2\text{Ta}_2\text{O}_7 \)).  \( \text{D(calc.)} = 8.21 \) (synthetic \( \text{Sn}_2\text{Ta}_2\text{O}_7 \)).

Optical Properties: Translucent. Color: Yellowish brown; in reflected light, light gray with a reddish or lilac tint, with strong reddish brown internal reflections. Optical Class: Isotropic. \( n = \text{n.d.} \)

Cell Data: \textit{Space Group}: \textit{Fd\bar{3} m}. \( a = 10.57 \) \( Z = 8 \)

X-ray Powder Pattern: Near Sukula, Finland. 3.046 (vs), 1.866 (s), 1.589 (s), 2.640 (ms), 1.524 (m), 1.2105 (m), 1.1796 (m)

Chemistry:

\[
\begin{array}{ccc}
\text{Nb}_2\text{O}_5 & 7.40 & 7.40 & 7.40 \\
\text{Ta}_2\text{O}_3 & 41.86 & 41.86 & 41.86 \\
\text{TiO}_2 & 0.99 & 0.99 & 0.99 \\
\text{SnO}_2 & 48.35 & [8.49] \\
\text{SnO} & 43.22 & [35.63] \\
\text{FeO} & 2.09 & 2.09 & 2.09 \\
\text{MnO} & 1.42 & 1.42 & 1.42 \\
\text{H}_2\text{O} & 0.61 & [0.61] \\
\hline
\text{Total} & 102.10 & 96.97 & 98.49 \\
\end{array}
\]

(1) Near Sukula, Finland; by electron microprobe, total Sn as SnO\(_2\). (2) Do.; analysis (1) with total Sn as SnO. (3) Do.; analysis (1) with \( \text{Sn}^{2+}, \text{Sn}^{4+} \), and \( \text{(OH)}^- \) calculated to fill all sites; then corresponding to \( \text{(Sn}^{2+}_{1.66}\text{Fe}^{2+}_{0.18}\text{Mn}^{2+}_{0.13})_{2-2.00}(\text{Ta}_{1.21}\text{Sn}^{4+}_{0.36}\text{Nb}_{0.35}\text{Ti}_{0.08})_{2-2.00}[\text{O}_{6.57}(\text{OH})_{0.43}]_{2-7.00} \)

Mineral Group: Pyrochlore supergroup (general formula - \( A_2B_2X_6Y \); microlite group (\( B = \text{Ta}^{5+} \)).

Occurrence: A very rare mineral, replacing ferrowodginite inclusions in tantalian cassiterite, in a museum specimen from a granite pegmatite.

Association: Ferrowodginite, tantalian cassiterite, bismuth.

Distribution: From near Sukula, Tammela, Finland, the exact locality now lost.

Name: For a member of the \textit{microlite} group with prefixes to indicate dominant oxygen (oxy) in the \( Y \) site and tin (stanno) in the \( A \) site. Formerly ‘stannomicrolite’.

Type Material: n.d.