Oxystannomicrolite $Sn_2Ta_2O_6O$

Crystal Data: Cubic. *Point Group:* $4/m\,\bar{3}\,2/m$. As rims, to 20 μm, surrounding ferrowodginite crystals, which may be almost completely replaced.

Physical Properties: *Fracture:* [Uneven] (by analogy to pyrochlore group). *Tenacity:* [Brittle.] Hardness = > 7 D(meas.) = 8.34 (synthetic $Sn_2Ta_2O_7$). D(calc.) = 8.21 (synthetic $Sn_2Ta_2O_7$).

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* = n.d.

Cell Data: *Space Group: 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:

	(1)	(2)	(3)
Nb_2O_5	7.40	7.40	7.40
Ta_2O_3	41.86	41.86	41.86
TiO_2	0.99	0.99	0.99
SnO_2	48.35		[8.49]
SnO		43.22	[35.63]
FeO	2.09	2.09	2.09
MnO	1.42	1.42	1.42
H_2O			[0.61]
Total	102.10	96.97	98.49

(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 Sn^{2+}, Sn^{4+} and $(OH)^{1-}$ calculated to fill all sites; then corresponding to $(Sn^{2+}_{1.69}Fe^{2+}_{0.18}Mn^{2+}_{0.13})_{\Sigma=2.00}(Ta_{1.21}Sn^{4+}_{0.36}Nb_{0.35}Ti_{0.08})_{\Sigma=2.00}[O_{6.57}(OH)_{0.43}]_{\Sigma=7.00}$.

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

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 *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.

References: (1) Vorma, A. and J. Siivola (1967) Sukulaite - $Ta_2Sn_2O_7$ - and wodginite as inclusions in cassiterite in the granite pegmatite in Sukula, Tammela in SW Finland. Compt. Rendus Soc. géol. Finlande [Bull. Geol. Finland No. 229], 39, 173-187. (2) (1968) Amer. Mineral., 53, 2103-2104 (abs. ref. 2). (3) Ercit, T.S., P. Černý, and J. Siivola (1987) The composition of stannomicrolite. Neues Jahrb. Mineral., Monatsh., 249-252. (4) Atencio, D., M.B. Andrade, A.G. Christy, R. Gieré, and P.M. Kartashov (2010) The pyrochlore supergroup of minerals: nomenclature. Can. Mineral., 48, 673-698.