Tantalowodginite $(Mn_{0.5}\square_{0.5})TaTa_2O_8$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As anhedral masses to 12 cm, as crystals to 1 cm.

Physical Properties: *Cleavage*: Distinct on {100}. *Fracture*: Conchoidal. *Tenacity*: Brittle. Hardness = 5.5 D(meas.) = 7.61 D(calc.) = 7.87

Optical Properties: Semi-transparent. *Color*: Orange-red to deep red. S*treak*: Yellowish tan. *Luster*: Vitreous to sub-adamantine.
Optical Class: Biaxial (+). *n*(calc.) = 2.24 2V ≈ 70° *Orientation*: $Z \wedge c$ = 5-12°.
Pleochroism: Weak to moderate, orangish yellow ∥ cleavage to greenish yellow ⊥ to cleavage.
Birefringence: Strong to extreme. *Dispersion*: Strong, with anomalous sky-blue interference colors close to the extinction point.

Cell Data: Space Group: *C*2/*c*. a = 9.542(1) b = 11.488(2) c = 5.128(1) β = 91.13(1)° Z = 4

X-ray Powder Pattern: Emmons pegmatite, Uncle Tom Mountain, Oxford Co., Maine, USA.
3.667 (100), 3.000 (100), 2.957 (100), 3.838 (30), 2.883 (30), 1.778 (30), 7.332 (20)

Chemistry:

	(1)	(2)
Li_2O	0.54	
MnO	6.23	5.08
FeO	0.23	
TiO_2	0.01	
SnO_2	8.14	
Nb_2O_5	3.97	
Ta_2O_5	80.75	94.92
Total	99.88	100.00

(1) Emmons pegmatite, Uncle Tom Mountain, Oxford Co., Maine, USA; average of 6 electron microprobe analyses, Li_2O by direct-current plasma spectrometry; corresponds to $^{A}(Mn_{0.58}Li_{0.24}Fe_{0.02}\square_{0.16})_{\Sigma=1.00}{}^{B}(Ta_{0.62}Sn_{0.36}Ti_{0.01})_{\Sigma=0.98}{}^{C}(Ta_{1.83}Nb_{0.17})_{\Sigma=2.00}O_8$. (2) $(Mn_{0.5}\square_{0.5})TaTa_2O_8$.

Mineral Group: Wodginite group.

Occurrence: In the quartz-K-feldspar core of a complexly zoned pegmatite dike intruded into high-grade metasedimentary migmatites.

Association: Tantalite-(Mn), wodginite, columbite-(Mn), muscovite, fluorapatite, quartz, K-feldspar.

Distribution: At the Emmons pegmatite, Uncle Tom Mountain, near Greenwood, Oxford Co., Maine, USA.

Name: For dominant *tantal*um in the B-site in a member of the *wodginite* group.

Type Material: Maine Mineral and Gem Museum, Bethel, Maine, USA (MMGM-MP[2]-12-10-2016).

References: (1) Hanson, S.L., A.U. Falster, W.B. Simmons, R. Sprague, P. Vignola, N. Rotiroti, S. Andó, and F. Hatert (2018) Tantalowodginite, $(Mn_{0.5}\square_{0.5})TaTa_2O_8$, a new mineral species from the Emmons pegmatite, Uncle Tom Mountain, Maine, U.S.A. Can. Mineral., 56(4), 543-553.
(2) (2020) Amer. Mineral., 105, 1117 (abs. ref. 1).