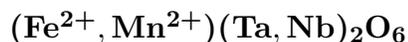


Ferrotantalite



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Crystal Data: Orthorhombic. *Point Group:* $2/m2/m2/m$. Commonly as exsolution intergrowths with ferrotapiolite.

Physical Properties: *Cleavage:* {100}, distinct; {010}, less distinct. *Fracture:* Subconchoidal to uneven. *Tenacity:* Brittle. Hardness = 6–6.5 D(meas.) = 6.65–7.95 D(calc.) = n.d. Paramagnetic.

Optical Properties: Opaque, translucent in thin edges. *Color:* Iron-black; reddish brown in transmitted light; gray in reflected light with red to reddish brown internal reflections.

Streak: Black. *Luster:* Submetallic to vitreous.

Optical Class: Biaxial (-). *Orientation:* $X = b$; $Y = a$; $Z = c$. *Dispersion:* $r < v$.

Absorption: Strong; $Z > X$. $\alpha = \text{n.d.}$ $\beta = \text{n.d.}$ $\gamma = \text{n.d.}$ $2V(\text{meas.}) = \text{n.d.}$

R_1 – R_2 : n.d.

Cell Data: *Space Group:* $[Pbcn]$ (by analogy to ferrocolumbite). $a = \text{n.d.}$ $b = \text{n.d.}$
 $c = \text{n.d.}$ $Z = [4]$

X-ray Powder Pattern: n.d.

Chemistry:

	(1)	(2)
Nb ₂ O ₅	26.8	
Ta ₂ O ₅	56.5	86.02
TiO ₂	0.6	
FeO	12.9	13.98
MnO	3.3	
Total	100.1	100.00

(1) Spittal a.d. Drau, Austria; by electron microprobe, total Fe as FeO; corresponds to $(\text{Fe}_{0.78}\text{Mn}_{0.20})_{\Sigma=0.98}\text{Ti}_{0.03}(\text{Ta}_{1.11}\text{Nb}_{0.87})_{\Sigma=1.98}\text{O}_6$. (2) FeTa_2O_6 .

Polymorphism & Series: Dimorphous with ferrotapiolite; forms two series, with manganotantalite and with ferrocolumbite.

Occurrence: As an accessory and primary constituent of granite pegmatites.

Association: Ferrotapiolite.

Distribution: Material analyzed by microprobe from: Moss, Norway. At Spittal an der Drau, Austria. From Nyanga, Uganda. At Muhembe, Rwanda. At Upper Bear Gulch, Lawrence Co., South Dakota, USA. In the Yellowknife district, Northwest Territories, Canada.

Name: For its dominant content of FERROus iron, and the Greek mythical *Tantalus*, for the difficulty in bringing the mineral into solution.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 780–787. (2) Turnock, A.C. (1966) Synthetic wodginite, tapiolite and tantalite. Can. Mineral., 8, 461–470. (3) Černý, P., T.S. Ercit, and M.A. Wise (1992) The tantalite–tapiolite gap: natural assemblages versus experimental data. Can. Mineral., 30, 587–596.