

Crystal Data: Monoclinic. *Point Group:* 2/m. As equant polygranular masses to 1.5 cm.

Physical Properties: *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Irregular. Hardness = 5.5
 $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 6.285$

Optical Properties: Opaque. *Color:* Black; light gray with a slight violet tint in reflected light.
Streak: Black. *Luster:* Metallic.

Optical Class: n.d. Bireflectance and anisotropy in air and oil are weak but noticeable.

$R_1\text{-}R_2$: (470) 16.89-17.72 (5.26-5.76)_{oil}, (546) 16.49-17.26 (4.98-5.32)_{oil},
(589) 16.34-17.04 (4.97-5.26)_{oil}, (650) 16.23-16.94 (4.86-5.19)_{oil}.

Cell Data: *Space Group:* C2/c. $a = 9.422(4)$ $b = 11.427(3)$ $c = 5.120(1)$ $\beta = 90.12(4)^\circ$ $Z = 4$

X-ray Powder Pattern: La Calandria pegmatite, Cañada del Puerto, Córdoba province, Argentina.
2.964 (100), 1.711 (50), 3.630 (40), 2.493 (40), 1.735 (40), 1.4563 (40), 2.564 (35)

Chemistry:	(1)	(2)
WO ₃	2.41	
Nb ₂ O ₅	30.18	63.65
Ta ₂ O ₅	37.56	
TiO ₂	6.90	19.14
ZrO ₂	0.88	
SnO ₂	3.82	
Fe ₂ O ₃	[4.35]	
FeO	[7.54]	17.21
MnO	5.14	
CaO	0.02	
UO ₂	0.38	
Total	99.18	100.00

(1) La Calandria pegmatite, Cañada del Puerto, Córdoba province, Argentina; average of 8 electron microprobe analyses, Fe₂O₃:FeO calculated for charge balance; corresponds to $(\text{Fe}^{2+})_{2.21}\text{Mn}_{1.52}\text{Fe}^{3+}_{0.23}\text{U}_{0.03}\text{Ca}_{0.01})_{\Sigma=4.00}(\text{Ti}_{1.82}\text{Fe}^{3+}_{0.92}\text{Ta}_{0.58}\text{Sn}_{0.53}\text{Zr}_{0.15})_{\Sigma=4.00}(\text{Nb}_{4.78}\text{Ta}_{3.00}\text{W}_{0.22})_{\Sigma=8.00}\text{O}_{32}$. (2) $\text{Fe}^{2+}\text{TiNb}_2\text{O}_8$.

Mineral Group: Wodginite group.

Occurrence: In the intermediate zone of a topaz- and columbite-tantalite-bearing granitic pegmatite which is concordant with the schistosity of regional metasedimentary rocks.

Association: Ta-rich rutile, pyrochlore supergroup minerals, cassiterite, columbite-(Mn), ixiolite, traces of bismuth, topaz, triplite, microlite group minerals, Nb-Ta oxides, K-feldspar, quartz, albite.

Distribution: From La Calandria granitic pegmatite, Cañada del Puerto, Córdoba province, Argentina.

Name: For the type locality, the *Achala* granite batholith, Argentina.

Type Material: Geology and Mineralogy Museum, “Dr. Alfred Stelzner”, National University of Córdoba, Argentina (3279).

References: (1) Galliski, M.A., M.F. Márquez-Zavalía, P. Černý, R. Lira, F. Colombo, A.C. Roberts, and H.-J. Bernhardt (2016) Achalaite, $\text{Fe}^{2+}\text{TiNb}_2\text{O}_8$, a new member of the wodginite group from the La Calandria granitic pegmatite, Córdoba, Argentina. Can. Mineral., 54(4), 1043-1052. (2) (2018) Amer. Mineral., 103, 330-331 (abs. ref. 1).