

# Liandratite

# U<sup>6+</sup>(Nb, Ta)<sub>2</sub>O<sub>8</sub>

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**Crystal Data:** Hexagonal; metamict. *Point Group:*  $\bar{3} 2/m$ . In crusts, to 2 mm thick, over petscheckite crystals.

**Physical Properties:** *Fracture:* Conchoidal. Hardness = 3.5 D(meas.) = 7.0 (after heating). D(calc.) = 6.87 (for U(Nb, Ta)<sub>2</sub>O<sub>8</sub> with Nb:Ta = 5:1). Radioactive.

**Optical Properties:** Translucent. *Color:* Yellow to yellow-brown. *Streak:* Pale yellow. *Luster:* Glassy. *Optical Class:* Isotropic.  $n = 1.83$

**Cell Data:** *Space Group:*  $P\bar{3}1m$  after heating at 650 °C.  $a = 6.36$   $c = 4.01$   $Z = 1$

**X-ray Powder Pattern:** Berere, Madagascar; after heating at 650 °C. 3.18 (10), 4.01 (8), 2.49 (4), 1.838 (3), 1.692 (2), 1.200 (2), 2.00 (1)

Chemistry:	(1)	(2)
UO <sub>3</sub>		49.22
UO <sub>2</sub>	~50.	
(Nb, Ta) <sub>2</sub> O <sub>5</sub>	~50.	
Nb <sub>2</sub> O <sub>5</sub>		38.11
Ta <sub>2</sub> O <sub>5</sub>		12.67
H <sub>2</sub> O	~0.5	
Total		100.00

(1) Berere, Madagascar; by microchemical analysis. (2) U(Nb, Ta)<sub>2</sub>O<sub>8</sub> with Nb:Ta = 5:1.

**Occurrence:** In a zoned pegmatite in amphibolite-grade gneiss, as an oxidized crust over petscheckite.

**Association:** Petscheckite, columbite, pyrochlore, strüverite, monazite, ilmenite, garnet, tourmaline, beryl, quartz, feldspar.

**Distribution:** From the Antsakoa I pegmatite, Fianavantsoa, near Berere, about 40 km northeast of Tsaratanana, Madagascar.

**Name:** Honors Professor George Liandrat, of Samoëns, France, who prospected in Madagascar.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 145619.

**References:** (1) Mücke, A. and H. Strunz (1978) Petscheckite and liandratite, two new pegmatite minerals from Madagascar. *Amer. Mineral.*, 63, 941–946.