

Liandratite

U⁶⁺(Nb, Ta)₂O₈

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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)₂O₈ 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 ₃		49.22
UO ₂	~50.	
(Nb, Ta) ₂ O ₅	~50.	
Nb ₂ O ₅		38.11
Ta ₂ O ₅		12.67
H ₂ O	~0.5	
Total		100.00

(1) Berere, Madagascar; by microchemical analysis. (2) U(Nb, Ta)₂O₈ 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.