

**Rankamaite****(Na, K, Pb, Li)<sub>3</sub>(Ta, Nb, Al)<sub>11</sub>(O, OH)<sub>30</sub>**

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**Crystal Data:** Orthorhombic, pseudotetragonal. *Point Group:* 222, *mm*2, or 2/*m* 2/*m* 2/*m*. Straight to wavy fibers, aggregated into rounded grains, to 1 cm; these may be concentrically layered, in nodular masses surrounding simpsonite.

**Physical Properties:** Hardness = 3–4 D(meas.) = 5.5 D(calc.) = [6.02]

**Optical Properties:** Semitransparent. *Color:* White to cream-white, may be yellowish due to iron staining; bluish gray to brownish in thin section. *Luster:* Silky.

*Optical Class:* Biaxial. *Orientation:*  $X \perp c$ ;  $Z = c$ .  $\alpha = > 2.10$   $\beta = > 2.10$   $\gamma = > 2.10$   
2V(meas.) = n.d.

**Cell Data:** *Space Group:* *C*222, *C**mm*2, *C**m*2*m*, or *C**mmm*.  $a = 17.19$   $b = 17.70$   
 $c = 3.933$   $Z = 2$

**X-ray Powder Pattern:** Mumba district, Congo; shows some preferred orientation. 2.970 (100), 3.011 (80), 3.375 (60), 3.467 (52), 3.935 (41), 4.112 (34), 1.7363 (32)

**Chemistry:**

	(1)	(2)
Nb <sub>2</sub> O <sub>5</sub>	17.40	15.69
Ta <sub>2</sub> O <sub>5</sub>	69.47	73.60
SiO <sub>2</sub>	0.96	
Fe <sub>2</sub> O <sub>3</sub>		1.06
Al <sub>2</sub> O <sub>3</sub>	3.40	2.18
PbO	2.63	1.81
CaO		0.05
Na <sub>2</sub> O	2.31	1.86
K <sub>2</sub> O	1.80	2.16
Li <sub>2</sub> O	0.11	
H <sub>2</sub> O <sup>+</sup>	1.55	
H <sub>2</sub> O <sup>-</sup>	0.35	
Total	99.98	98.41

(1) Mumba district, Congo; after deduction of muscovite impurity, corresponds to (Na<sub>1.72</sub>K<sub>0.76</sub>Pb<sub>0.28</sub>Li<sub>0.17</sub>)<sub>Σ=2.93</sub>(Ta<sub>6.88</sub>Nb<sub>3.03</sub>Al<sub>1.18</sub>)<sub>Σ=11.09</sub>[O<sub>26.26</sub>(OH)<sub>3.74</sub>]<sub>Σ=30.00</sub>. (2) [Congo]; by electron microprobe, corresponding to (Na<sub>1.41</sub>K<sub>1.08</sub>Pb<sub>0.19</sub>)<sub>Σ=2.68</sub>(Ta<sub>7.84</sub>Nb<sub>2.78</sub>Al<sub>1.01</sub>Fe<sub>0.31</sub>)<sub>Σ=11.94</sub>[O, (OH)]<sub>30</sub>.

**Occurrence:** Apparently a replacement of simpsonite, the result of intense sodium metasomatism in some Li-Ta-Nb-bearing granite pegmatites.

**Association:** Simpsonite, microlite, cassiterite, beryl, manganotantalite, muscovite, kaolinite (Mumba district, Congo); lithiotantite (Eastern Kazakhstan).

**Distribution:** In heavy-mineral concentrates from alluvial deposits in the Mumba district, Masisi, Kivu Province, Congo (Zaire). From an undisclosed locality [Kalba Mountains] in eastern Kazakhstan.

**Name:** To honor Professor Kalervo Rankama (1913–1995), Finnish geochemist, University of Helsinki, Helsinki, Finland.

**Type Material:** n.d.

**References:** (1) von Knorring, O., A. Vormaa, and P.H. Nixon (1969) Rankamaite, a new tantalum mineral from Kivu, Congo. *Bull. Geol. Soc. Finland*, 41, 47–56. (2) (1970) *Amer. Mineral.*, 55, 1814 (abs. ref. 1). (3) Voloshin, A.V., Y.P. Men'shikov, and Y.A. Pakhomovskii (1982) Sosedkoite, (K, Na)<sub>5</sub>Al<sub>2</sub>(Ta, Nb, Sb)<sub>22</sub>O<sub>60</sub> – a new mineral from granite pegmatite. *Doklady Acad. Nauk SSSR*, 264, 442–445 (in Russian).

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