

Kenoplumbomicrolite**(Pb, □)₂Ta₂O₆[□, (OH), O]**

Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. As octahedral or cuboctahedral crystals, to 20 cm; massive.

Physical Properties: *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = ~6 VHN = 610 (40 g load). $D(\text{meas.}) = 7.523$ (ubiquitous presence of inclusions of uraninite). $D(\text{calc.}) = 7.122$

Optical Properties: Translucent. *Color:* Yellowish brown. *Streak:* White. *Luster:* Greasy. *Optical Class:* Isotropic.

R: (470) 18.62 (6.61)_{oil}, (546) 17.62 (5.88)_{oil}, (589) 17.26 (5.62)_{oil}, (650) 16.9 (5.34)_{oil}

Cell Data: *Space Group:* $Fd\bar{3}m$. $a = 10.571(1)$ $Z = 8$

X-ray Powder Pattern: Ploskaya Mountain, Kola Peninsula, Russia.

3.050 (100), 2.641 (42), 1.869 (26), 1.595 (23), 2.425 (9), 1.527 (9), 2.033 (6)

Chemistry:	(1)	(2)	(1)	(2)
Na ₂ O	0.37		SnO ₂	3.47
CaO	2.51		Fe ₂ O ₃	1.28 1.34
PbO	45.39	46.05	Al ₂ O ₃	0.07
UO ₂	1.24		WO ₃	2.88
Ta ₂ O ₅	28.58	29.95	SnO ₂	4.27
Nb ₂ O ₅	12.90	14.85	MnO	0.10
TiO ₂	0.84	0.49	H ₂ O	[0.35]
SiO ₂	2.19		Total	99.19 99.93

(1) Ploskaya Mountain, Kola Peninsula, Russia; average of 4 electron microprobe analyses, H₂O calculated from structure; $(\text{Pb}_{1.30}\square_{0.30}\text{Ca}_{0.29}\text{Na}_{0.08}\text{U}_{0.03})_{\Sigma=2.00}(\text{Ta}_{0.82}\text{Nb}_{0.62}\text{Si}_{0.23}\text{Sn}^{4+}_{0.15}\text{Ti}_{0.07}\text{Fe}^{3+}_{0.10}\text{Al}_{0.01})_{\Sigma=2.00}\text{O}_6[\square_{0.52}(\text{OH})_{0.25}\text{O}_{0.23}]_{\Sigma=1.00}$. (2) Do.; average of 7 electron microprobe analyses; yields $(\text{Pb}_{1.33}\square_{0.66}\text{Mn}_{0.01})_{\Sigma=2.00}(\text{Ta}_{0.87}\text{Nb}_{0.72}\text{Sn}^{4+}\text{Fe}^{3+}_{0.11}\text{W}_{0.08}\text{Ti}_{0.04})_{\Sigma=2.00}\text{O}_6[\square_{0.80}(\text{OH})_{0.10}\text{O}_{0.10}]_{\Sigma=1.00}$.

Mineral Group: Pyrochlore supergroup (general formula - $A_2B_2X_6Y$); microlite group ($B = \text{Ta}^{5+}$).

Occurrence: An accessory mineral in a vein of amazonite pegmatite along the contact between gneiss and schist and genetically related to an alkaline granite pluton.

Association: Microcline (var. amazonite), albite (var. cleavelandite), quartz, biotite, 'zinnwaldite', anglesite, bastnäsite-(Ce), bismite, bismuth, bismuthinite, bismutite, cassiterite, caysichite-(Y), churchite-(Y), columbite-(Mn), emplectite, fergusonite-(Y), fluorite, gadolinite-(Y), gahnite, galena, hingganite-(Y), hingganite-(Yb), kinosite-(Y), kamphaugite-(Y), kasolite, keiviite-(Y), keiviite-(Yb), kuliokite-(Y), lanarkite, leadhillite, löllingite, monazite-(Ce), pyromorphite, scotlandite, sillénite, sphalerite, tenerite-(Y), thalénite-(Y), thorite, uraninite, vyuntspakhkrite-(Y), wulfenite, xenotime-(Y), xenotime-(Yb), zavaritskite, uraninite inclusions.

Distribution: From Ploskaya Mountain, Western Keivy Massif, Kola Peninsula, Murmanskaja Oblast, Northern Region, Russia.

Name: For a member of the *microlite* group with prefixes to indicate dominant vacancies (*keno*) in the Y site and dominant lead (*plumbo*) in the A site.

Type Material: Museum, Institute of Geosciences, University of São Paulo, Brazil (DR980).

References: (1) Atencio, D., M.B. Andrade, L. Bindi, P. Bonazzi, M. Zoppi, C.J. Stanley, and R. Kristiansen (2018) Kenoplumbomicrolite, $(\text{Pb},\square)_2\text{Ta}_2\text{O}_6[\square,(\text{OH}),\text{O}]$, a new mineral from Ploskaya, Kola Peninsula, Russia. *Mineral. Mag.*, 82(5), 1049-1055. (2) Bindi, L., M. Zoppi, and P. Bonazzi (2006) Plumbomicrolite from the Ploskaya Mountain, Keivy Massif, Kola Peninsula, Russia: composition and crystal structure. *Periodico di Mineralogia*, 75, 51-58.