

Selivanovaite**NaTi₃(Ti, Na, Fe, Mn)₄[(Si₂O₇)₂O₄(OH, H₂O)₄]·nH₂O**

Crystal Data: Triclinic. *Point Group:* 1. As platy metacrysts to 8 mm.

Physical Properties: *Cleavage:* Perfect on {001}; weak on {110}. *Fracture:* Stepped.
Tenacity: Brittle. *Hardness* = ~3 *D*(meas.) = 3.15(3) *D*(calc.) = 3.34 Soluble in 10% HCl.

Optical Properties: Translucent. *Color:* Dark orange; yellowish brown in transmitted light.
Streak: Brownish-white. *Luster:* Vitreous to greasy.
Optical Class: Biaxial (+). $\alpha = 1.79(1)$ $\beta = 1.81(1)$ $\gamma = 1.87(1)$ $2V(\text{meas.}) = 40(5)^\circ$
 $2V(\text{calc.}) = 57.3^\circ$ *Orientation:* $Z \wedge c = 5-10^\circ$.

Cell Data: Space Group: *P1*. $a = 8.673(5)$ $b = 8.694(3)$ $c = 12.21(1)$ $\alpha = 92.70(5)^\circ$
 $\beta = 108.46(7)^\circ$ $\gamma = 105.40(4)^\circ$ $Z = 2$

X-ray Powder Pattern: Mt. Kedykvyrpakhk, Lovozero alkaline massif, Kola Peninsula, Russia.
11.43 (100), 3.108 (35), 6.37 (25), 3.043 (20), 2.596 (17), 4.208 (16), 5.73 (15)

Chemistry:	(1)		(1)
Na ₂ O	5.45	TiO ₂	31.17
MgO	0.59	MnO	2.64
Al ₂ O ₃	0.04	Fe ₂ O ₃	6.63
SiO ₂	25.55	ZrO ₂	2.31
K ₂ O	0.63	Nb ₂ O ₅	6.69
CaO	1.68	<u>H₂O</u>	<u>17.0</u>
		Total	100.38

(1) Mt. Kedykvyrpakhk, Lovozero alkaline massif, Kola Peninsula, Russia; average electron microprobe analysis supplemented by Raman spectroscopy, H₂O by the Penfield method; corresponds to (Na_{1.65}Mn_{0.35}Ca_{0.28}Zr_{0.18}Mg_{0.14}K_{0.13}) $\Sigma=2.73$ (Ti_{3.67}Fe³⁺_{0.78}Nb_{0.47}Al_{0.01}) $\Sigma=4.93$ [Si₄O_{19.72}]·8.87H₂O.

Mineral Group: Seidozerite supergroup, murmanite group.

Occurrence: An accessory mineral in medium-grained trachytoid eudialyte malignite (modal Kfs₄₀Nph₃₀Aeg₂₀Eud₁₀) collected from drill core in a Ta-Nb-REE-Zr deposit in an alkaline massif.

Association: Murmanite, loparite-(Ce), pyrochlore, thorite, anatase, baryte, rhabdophane-(Ce), pyrrhotite, chalcopyrite, pyrite, chlorbartonite, djerfisherite, sphalerite, löllingite.

Distribution: From Mt. Kedykvyrpakhk, Lovozero alkaline massif, Kola Peninsula, Russia.

Name: Honors Ekaterina A. Selivanova (b. 1967), of the Kola Science Centre of the Russian Academy of Sciences, for her contribution to the mineralogy of alkaline complexes.

Type Material: Mineralogical Museum, St. Petersburg State University, (1/19649) and in the Geological and Mineralogical Museum, Geological Institute of the Kola Science Centre, Apatity, (GIM 7538), Russia.

References: (1) Pakhomovsky, Y.A., T.L. Panikorovskii, V.N. Yakovenchuk, G.Yu. Ivanyuk, J.A. Mikhailova, S.V. Krivovichev, V.N. Bocharov, and A.O. Kalashnikov (2018) Selivanovaite, NaTi₃(Ti,Na,Fe,Mn)₄[(Si₂O₇)₂O₄(OH,H₂O)₄]·nH₂O, a new rock-forming mineral from the eudialyte-rich malignite of the Lovozero alkaline massif (Kola Peninsula, Russia). *Eur. J. Mineral.*, 30(3), 525-535. (2) (2019) *Amer. Mineral.*, 104(12), 1870-1871 (abs. ref. 1).