

Crystal Data: Triclinic. *Point Group:* $\bar{1}$. As elongated or tabular crystals to 1.6 mm.

Physical Properties: *Cleavage:* None. *Tenacity:* n.d. *Hardness:* = 5-5.5 *D(meas.)* = 3.45(5) *D(calc.)* = 3.51

Optical Properties: Transparent. *Color:* Pale cream to white, very pale tan, or rarely brown; colorless in thin section. *Streak:* White. *Luster:* Dull, greasy or pearly.
Optical Class: Biaxial (+). $\alpha = 1.745(5)$ $\beta = 1.747(5)$ $\gamma = 1.752(5)$ $2V(\text{meas.}) = 60^\circ$
 $2V(\text{calc.}) = 65^\circ$ *Orientation:* $X \approx c$. *Dispersion:* Moderate, $r > v$.

Cell Data: Space Group: $P\bar{1}$. $a = 9.4024(8)$ $b = 5.5623(5)$ $c = 7.3784(6)$ $\alpha = 89.919(2)^\circ$
 $\beta = 101.408(2)^\circ$ $\gamma = 96.621(2)^\circ$ $Z = 1$

X-ray Powder Pattern: Sakharjok alkaline massif, Western Keivy, Kola Peninsula, Russia.
 2.991 (100), 7.238 (36), 3.061 (30), 4.350 (23), 9.145 (17), 4.042 (16), 2.819 (16)

Chemistry:		(1)		(1)
SiO ₂		29.96	Ce ₂ O ₃	0.33
Al ₂ O ₃		0.56	Nd ₂ O ₃	0.02
TiO ₂		8.01	Gd ₂ O ₃	0.07
ZrO ₂		2.72	Dy ₂ O ₃	0.47
Nb ₂ O ₅		2.25	Er ₂ O ₃	1.07
MnO		1.31	Tm ₂ O ₃	0.25
MgO		0.01	Yb ₂ O ₃	2.81
Fe ₂ O ₃		0.43	Lu ₂ O ₃	0.45
CaO		24.98	F	2.88
Na ₂ O		1.13	Cl	0.19
K ₂ O		0.02	H ₂ O	[6.75]
Y ₂ O ₃		11.45	$\frac{-O = (F, Cl)_2}{\text{Total}}$	$\frac{1.25}{97.09}$
La ₂ O ₃		0.22		

(1) Sakharjok alkaline massif, Western Keivy, Kola Peninsula, Russia; electron microprobe analysis supplemented by IR spectroscopy and EDS, H₂O from structure; corresponds to (Y_{0.81}Ca_{0.65}Mn_{0.15}Zr_{0.12}Yb_{0.11}Er_{0.04}Fe³⁺_{0.04}Ce_{0.02}Dy_{0.02}Lu_{0.02}La_{0.01}Tm_{0.01}) $\Sigma=2.00$ [(H₂O)_{0.75}Ca_{0.70}□_{0.55}] $\Sigma=2.00$ Ca_{2.00}[□_{0.61}Na_{0.25}(H₂O)_{0.14}] $\Sigma=1.00$ (Ti_{0.76}Nb_{0.15}Zr_{0.09}) $\Sigma=1.00$ [(Si_{3.91}Al_{0.09}) $\Sigma=4.00$ O₁₄][OH]_{1.56}F_{0.44}] $\Sigma=2.00$ [(H₂O)_{1.27}F_{0.73}] $\Sigma=2.00$.

Occurrence: In nepheline syenite pegmatite near its contact with essexite in an alkaline massif, formed at the late-pegmatitic or hydrothermal stage.

Association: Hainite, calcite, albite, natrolite, nepheline, albite, alkaline pyroxenes, amphiboles, biotite, zeolites.

Distribution: From the Sakharjok alkaline massif, Western Keivy, Kola Peninsula, Russia.

Name: Honors Russian geologist Iya Dmitrievna Batieva (1922-2007) for her contributions to the geology and petrology of metamorphic and alkaline complexes of the Kola Peninsula.

Type Material: I.V. Bel'kov Museum of Geology and Mineralogy, Geological Institute of the Kola Science Center, Russian Academy of Sciences, Apatity, Murmansk region, Russia (GIM 7389).

References: (1) Lyalina, L.M., A.A. Zolotarev Jr., E.A. Selivanova, Ye.E. Savchenko, S.V. Krivovichev, Yu.A. Mikhailova, G.I. Kadyrova, and D.R. Zozulya (2016) Batievaite-(Y), Y₂Ca₂Ti[Si₂O₇]₂(OH)₂(H₂O)₄, a new mineral from nepheline syenite pegmatite in the Sakharjok massif, Kola Peninsula, Russia. *Mineralogy and Petrology*, 110(6), 895-904. (2) (2017) *Amer. Mineral.*, 102, 916 (abs. ref. 1).