

Siudaite

Crystal Data: Hexagonal. *Point Group:* 3*m*. As equant anhedral grains to 1.5 cm.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 4.5
D(meas.) = 2.96(1) D(calc.) = 2.973

Optical Properties: Translucent. *Color:* Yellow to brownish yellow; colorless to pale brown in transmitted light. *Streak:* White. *Luster:* Vitreous.

Optical Class: Uniaxial (-). $\omega = 1.635(1)$ $\varepsilon = 1.626(1)$

Cell Data: Space Group: *R3m*. $a = 14.1885(26)$ $c = 29.831(7)$ $Z = 3$

X-ray Powder Pattern: Mt. Eveslogchorr, Khibiny massif, Kola Peninsula, Russia.
2.963 (100), 2.843 (99), 3.191 (63), 6.38 (60), 4.29 (55), 2.577 (49), 3.389 (47)

Chemistry:	(1)		(1)
Na ₂ O	8.40	TiO ₂	0.54
K ₂ O	0.62	ZrO ₂	11.67
CaO	9.81	HfO ₂	0.29
La ₂ O ₃	1.03	Nb ₂ O ₅	2.76
Ce ₂ O ₃	1.62	SiO ₂	47.20
Pr ₂ O ₃	0.21	Cl	0.54
Nd ₂ O ₃	0.29	H ₂ O	3.5
MnO	6.45	<u>-O = Cl₂</u>	<u>0.12</u>
Fe ₂ O ₃	4.51	Total	99.32

(1) Mt. Eveslogchorr, Khibiny massif, Russia; average electron microprobe analysis supplemented by IR and Mössbauer spectroscopy and HCN analysis, CO₂ not detected; considering structural data corresponds to [Na_{7.57}(H₂O)_{1.43}]_{Σ=9.00}(Mn_{1.11}Na_{0.88}Ce_{0.31}La_{0.20}Nd_{0.05}Pr_{0.04}K_{0.41})_{Σ=3.00}(H₂O)_{1.8}(Ca_{5.46}Mn_{0.54})_{Σ=6.00}(Fe³⁺_{1.76}Mn²⁺_{1.19})_{Σ=2.95}Nb_{0.65}(Ti_{0.20}Si_{0.50})_{Σ=0.71}(Zr_{2.95}Hf_{0.04}Ti_{0.01})_{Σ=3.00}Si_{24.00}O₇₀Cl_{0.47}(OH)₂Cl_{0.47}·1.82H₂O.

Mineral Group: Eudialyte group.

Occurrence: A product of the hydrothermal alteration of a primary eudialyte-group mineral presumably related to georgbarsanovite, in a peralkaline pegmatite.

Association: Aegirine, albite, microcline, nepheline, astrophyllite, loparite-(Ce).

Distribution: From the Astrophyllitovyi Stream valley, Mt. Eveslogchorr, Khibiny alkaline massif, Kola Peninsula, Russia.

Name: Honors the Polish mineralogist and geochemist Rafał Siuda (b. 1975), a specialist in the mineralogy and geochemistry of supergene zones of the ore deposits of Lower Silesia, Poland.

Type Material: Mineralogical and Petrographical Section, Museum of Earth PAS (Muzeum Ziemi Polskiej Akademii Nauk), Warsaw, Poland (MZI III/1/541).

References: (1) Chukanov, N.V., R.K. Rastsvetaeva, Ł. Kruszewski, S.M. Aksenov, V.S. Rusakov, S.N. Britvin, and S.A. Vozchikova (2018) Siudaite, Na₈(Mn²⁺₂Na)Ca₆Fe³⁺₃Zr₃NbSi₂₅O₇₄(OH)₂Cl·5H₂O: a new eudialyte-group mineral from the Khibiny alkaline massif, Kola Peninsula. *Phys. Chem. Minerals*, 45(8), 745-758. (2) (2019) *Amer. Mineral.*, 104(4), 628-629 (abs. ref. 1).