

**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)

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

(1) Mt. Eveslogchorr, Khibiny massif, Russia; average electron microprobe analysis supplemented by IR and Mössbauer spectroscopy and HCN analysis, CO<sub>2</sub> not detected; considering structural data corresponds to [Na<sub>7.57</sub>(H<sub>2</sub>O)<sub>1.43</sub>]<sub>Σ=9.00</sub>(Mn<sub>1.11</sub>Na<sub>0.88</sub>Ce<sub>0.31</sub>La<sub>0.20</sub>Nd<sub>0.05</sub>Pr<sub>0.04</sub>K<sub>0.41</sub>)<sub>Σ=3.00</sub>(H<sub>2</sub>O)<sub>1.8</sub>(Ca<sub>5.46</sub>Mn<sub>0.54</sub>)<sub>Σ=6.00</sub>(Fe<sup>3+</sup><sub>1.76</sub>Mn<sup>2+</sup><sub>1.19</sub>)<sub>Σ=2.95</sub>Nb<sub>0.65</sub>(Ti<sub>0.20</sub>Si<sub>0.50</sub>)<sub>Σ=0.71</sub>(Zr<sub>2.95</sub>Hf<sub>0.04</sub>Ti<sub>0.01</sub>)<sub>Σ=3.00</sub>Si<sub>24.00</sub>O<sub>70</sub>Cl<sub>0.47</sub>(OH)<sub>2</sub>Cl<sub>0.47</sub>·1.82H<sub>2</sub>O.

**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, Na<sub>8</sub>(Mn<sup>2+</sup><sub>2</sub>Na)Ca<sub>6</sub>Fe<sup>3+</sup><sub>3</sub>Zr<sub>3</sub>NbSi<sub>25</sub>O<sub>74</sub>(OH)<sub>2</sub>Cl·5H<sub>2</sub>O: 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).