

Crystal Data: Monoclinic. *Point Group:* 2/m. As imperfect prismatic crystals, to 100 μm , with diamond-shaped cross sections.

Physical Properties: *Cleavage:* None. *Fracture:* n.d. *Tenacity:* Brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 5.054

Optical Properties: Opaque. *Color:* Grayish black; gray with a slight bluish hue in reflected light. *Streak:* n.d. *Luster:* Submetallic.

Optical Class: n.d.

R_1 - R_2 : (440) 14.8-15.7, (460) 13.9-15.1, (470) 13.8-14.8, (480) 13.8-14.6, (500) 13.8-14.7, (520) 13.4-14.9, (540) 13.0-14.8, (546) 13.0-14.8, (560) 12.9-14.7, (580) 12.8-14.3, (589) 13.0-14.3, (600) 13.1-14.3, (620) 13.3-14.2, (640) 13.3-14.3, (650) 13.2-14.2, (660) 13.0-14.1, (680) 13.1-13.9, (700) 13.0-14.2

Cell Data: *Space Group:* C2/m. $a = 5.290(2)$ $b = 14.575(6)$ $c = 5.234(2)$ $\beta = 97.233(7)^\circ$ $Z = 1$

X-ray Powder Pattern: Afrikanda silicocarbonatite, Kola Peninsula, Russia.

2.596 (100), 1.935 (18), 1.506 (14), 1.286 (13), 2.046 (12), 1.730 (12), 1.272 (12)

Chemistry:	(1)
Nb ₂ O ₅	2.31
TiO ₂	36.52
SiO ₂	0.17
ThO ₂	0.14
La ₂ O ₃	5.40
Ce ₂ O ₃	28.73
Pr ₂ O ₃	3.42
Nd ₂ O ₃	11.54
Sm ₂ O ₃	1.18
CaO	1.64
FeO	5.63
H ₂ O	[1.45]
Total	98.13

(1) Afrikanda silicocarbonatite, Kola Peninsula, Russia; average of 10 electron microprobe analyses, H₂O calculated from structure analysis; corresponding to $(\text{Ce}_{2.18}\text{Nd}_{0.85}\text{La}_{0.41}\text{Pr}_{0.26}\text{Sm}_{0.08}\text{Ca}_{0.36}\text{Th}_{0.01})_{\Sigma=4.15}\text{Fe}_{0.97}(\text{Ti}^{4+}_{5.68}\text{Nb}_{0.22}\text{Si}_{0.04})_{\Sigma=5.94}\text{O}_{18}(\text{OH})_{2.00}$.

Occurrence: A late hydrothermal mineral in altered calcite-amphibole-clinopyroxene silicocarbonatite.

Association: Titanite, hibschite, clinochlore, calcite, ilmenite, Ti-rich magnetite.

Distribution: From the Afrikanda silicocarbonatite, Kola Peninsula, Russia.

Name: Honors Anatoly Zaitsev (b. 1963), Professor of Mineralogy at St. Petersburg State University, Russia and Scientific Associate at the Department of Earth Sciences, The Natural History Museum (London), for his contributions to the studies of REE minerals, carbonatites and alkaline rocks of the Kola Peninsula. The suffix indicates the dominant rare earth element.

Type Material: The Robert B. Ferguson Museum of Mineralogy, University of Manitoba, Winnipeg, Canada (M7888).

References: (1) Chakhmouradian, A.R., M.A. Cooper, L. Medici, Y.A. Abdu and Y.S. Shelukhina (2015) Anzaite-(Ce), a new rare-earth mineral and structure type from the Afrikanda silicocarbonatite, Kola Peninsula, Russia. *Mineral. Mag.*, 79(5), 1231-1244. (2) (2016) Amer. Mineral., 101, 2123-2124 (abs. ref. 1).