

Zolotarevite

Na₅Zr[Si₆O₁₅(OH)₃]·3H₂O

Crystal Data: Hexagonal. *Point Group:* $\bar{3}$ 2/m. As anhedral grains to 1 mm.

Physical Properties: *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = ~5
D(meas.) = 2.75(5) D(calc.) = 2.85

Optical Properties: Transparent. *Color:* Cherry-red. *Streak:* White. *Luster:* Vitreous.
Optical Class: Anomalously biaxial (-). $\alpha = 1.580(2)$ $\beta = 1.600(2)$ $\gamma = 1.602(2)$ $2V(\text{meas.}) = <10^\circ$
 $2V(\text{calc.}) = 35.1^\circ$

Cell Data: *Space Group:* R $\bar{3}$ m. $a = 10.294(6)$ $c = 13.115(8)$ $Z = 3$

X-Ray Diffraction Pattern: Mt. Kedykverpakhk, Lovozero massif, Kola Peninsula, Russia.
2.640 (100), 3.265 (99), 3.330 (79), 7.37 (69), 3.686 (64), 2.576 (60), 5.26 (56)

Chemistry:	(1)	(2)
Na ₂ O	20.41	22.08
CaO	0.42	
MnO	3.49	
Fe ₂ O ₃	0.55	
SiO ₂	52.46	51.37
TiO ₂	1.34	
ZrO ₂	11.33	17.56
H ₂ O	[10.20]	11.26
Total	100.20	100.00

(1) Mt. Kedykverpakhk, Lovozero massif, Kola Peninsula, Russia; average electron microprobe analysis supplemented by FTIR spectroscopy, H₂O calculated from structure; corresponds to Na_{4.53}Zr_{0.63}Mn_{0.34}Ti_{0.11}Ca_{0.05}Fe³⁺_{0.05}Si₆O_{14.43}(OH)_{3.56}(H₂O)_{2.11}. (2) Na₅Zr[Si₆O₁₅(OH)₃]·3H₂O.

Mineral Group: Lovozerite group, cation-deficient member of the zirsinalite-lovozerite subgroup.

Occurrence: In leucocratic nepheline syenite (foyaite) of an alkaline massif.

Association: Microcline-perthite, nepheline, sodalite, aegirine, lamprophyllite, lueshite, umbozerite, lomonosovite, nastrophite, a mineral of the kazakovite-isinalite series, sphalerite, löllingite.

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

Name: Honors Dr. Andrey A. Zolotarev (b. 1982), Russian crystallographer, St. Petersburg State University, for his contributions to the crystal chemistry and mineralogy of titano- and zircon-silicates.

Type Material: Geological and Mineralogical Museum, Geological Institute, Kola Science Center of the Russian Academy of Sciences, Apatity, Russia (GIM 7910).

References: (1) Mikhailova, J.A., E.A. Selivanova, S.V. Krivovichev, Y.A. Pakhomovsky, N.V. Chukanov, and V.N. Yakovenchuk (2022) The new mineral zolotarevite, Na₅Zr[Si₆O₁₅(OH)₃]·2-3H₂O, the first highly hydrated lovozerite-group member from the Lovozero alkaline massif, Kola Peninsula, Russia. Mineral. Mag., 86, 263-271.