Sergevanite $Na_{15}(Ca_3Mn_3)(Na_2Fe)Zr_3Si_{26}O_{72}(OH)_3 \cdot H_2O$

Crystal Data: Hexagonal. *Point Group*: 3. As anhedral grains to 1.5 mm and the outer zones of some grains of associated eudialyte.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: n.d. Hardness = 5
D(meas.) = 2.90(1) D(calc.) = 2.906 Nonfluorescent.

Optical Properties: Transparent. *Color*: Yellow to orange-yellow. *Streak*: White.
Luster: Vitreous.
Optical Class: Uniaxial (+). ω = 1.604(2) ε = 1.607(2) Non-pleochroic.

Cell Data: *Space Group*: *R*3. a = 14.2179(1) c = 30.3492(3) Z = 3

X-ray Powder Pattern: Karnasurt mine, Mt. Karnasurt, Lovozero massif, Kola Peninsula, Russia.
2.855 (100), 2.978 (95), 4.321 (72), 7.12 (70), 5.711 (43), 3.806 (39), 3.551 (39)

Chemistry:

	(1)		(1)
Na_2O	13.69	TiO_2	1.19
K_2O	1.40	ZrO_2	10.67
CaO	7.66	HfO_2	0.29
La_2O_3	0.90	Nb_2O_5	1.63
Ce_2O_3	1.41	SiO_2	49.61
Pr_2O_3	0.33	SO_3	0.77
Nd_2O_3	0.64	Cl	0.23
Sm_2O_3	0.14	H_2O	4.22
MnO	4.15	–O = Cl	0.05
FeO	1.34	Total	100.22

(1) Karnasurt mine, Mt. Karnasurt, Lovozero massif, Kola Peninsula, Russia; average electron microprobe and IR spectroscopic analyses, H_2O by HCN analysis; corresponds to $H_{14.46}Na_{13.64}K_{0.92}Ca_{4.22}Ce_{0.27}La_{0.17}Nd_{0.12}Pr_{0.06}Sm_{0.02}Mn_{1.81}Fe^{2+}_{0.58}Ti_{0.46}Zr_{2.67}Hf_{0.04}Nb_{0.38}Si_{25.5}S_{0.30}Cl_{0.20}O_{81.35}$.

Mineral Group: Eudialyte group, oneillite subgroup.

Occurrence: An accessory component in highly agpaitic foyaite of an alkaline massif.

Association: Microcline, albite, nepheline, arfvedsonite, aegirine, lamprophyllite, fluorapatite, steenstrupine-(Ce), ilmenite, sphalerite.

Distribution: From a dump of the Karnasurt underground mine, Mt. Karnasurt, Lovozero alkaline massif, Kola Peninsula, Murmansk Oblast, Russia.

Name: For the *Sergevan*' River, which is near the discovery locality.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (5423/1).

References: (1) Chukanov, M.V., S.M. Aksenov, I.V. Pekov, D.I. Belakovskiy, S.A. Vozchikova, and S.N. Britvin (2020) Sergevanite, $Na_{15}(Ca_3Mn_3)(Na_2Fe)Zr_3Si_{26}O_{72}(OH)_3 \cdot H_2O$, a new eudialyte-group mineral from the Lovozero alkaline massif, Kola Peninsula. Can. Mineral., 58, 421-436.