

Voronkovite**Crystal Data:** Hexagonal. *Point Group:* 3. As rounded, poorly faced crystals to 5 mm.**Physical Properties:** *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Conchoidal.

Hardness = 5 D(meas.) = 2.97(2) D(calc.) = 2.95

Optical Properties: Transparent. *Color:* Light brown. *Streak:* White. *Luster:* Vitreous.*Optical Class:* Uniaxial (+). $\omega = 1.610(2)$ $\varepsilon = 1.619(2)$ *Pleochroism:* O = lemon yellow,

E = brownish pink.

Cell Data: *Space Group:* R3. $a = 14.205(7)$ $c = 30.265(15)$ $Z = 3$ **X-Ray Diffraction Pattern:** Shkatulka pegmatite, Mt. Alluaiv, Kola Peninsula, Russia.

2.970 (100), 4.316 (85), 2.84 (84), 3.221 (43), 3.536 (41), 3.039 (41), 3.166 (37)

Chemistry:

	(1)		(1)
Na ₂ O	15.84	CaO	3.08
K ₂ O	0.28	FeO	3.53
TiO ₂	0.33	MnO	4.65
ZrO ₂	14.11	Al ₂ O ₃	0.15
HfO ₂	0.23	SiO ₂	49.48
La ₂ O ₃	0.93	F	0.21
Ce ₂ O ₃	1.36	Cl	0.44
Nd ₂ O ₃	0.68	H ₂ O	1.56
Nb ₂ O ₅	0.91	<u>-O = Cl + F</u>	<u>0.19</u>
SrO	1.76	Total	99.34

(1) Shkatulka pegmatite, Mt. Alluaiv, Kola Peninsula, Russia; average electron microprobe analysis supplemented by IR spectroscopy; corresponding to (Na_{13.96}Sr_{0.54}K_{0.19}) $\Sigma=14.69$ (Na_{1.64}Ca_{0.92}Ce_{0.26}La_{0.18}) $\Sigma=3.00$ (Mn_{2.06}Ca_{0.81}Nd_{0.13}) $\Sigma=3.00$ (Fe_{1.54}Zr_{0.60}Na_{0.48}Nb_{0.21}Ti_{0.13}Hf_{0.04}) $\Sigma=3.00$ Zr_{3.00}(Si_{1.91}Al_{0.09}) $\Sigma=2.00$ (Si₂₄O₇₂)[(OH)_{2.98}O_{1.02}] $\Sigma=4$ (Cl_{0.39}F_{0.35}) $\Sigma=0.74$ ·1.23H₂O.

Mineral Group: Eudialyte group, oneillite subgroup.**Occurrence:** In a lenticular zoned pegmatite hosted by poikilitic nepheline-sodalite syenite in the middle part of a differentiated alkaline complex.**Association:** Microcline, sodalite, nepheline, aegirine, terskite, lomonosovite, vunnemite, shkatulkalite, manganoneptunite, sphalerite.**Distribution:** In the Shkatulka hyperalkaline pegmatite, Mt. Alluaiv, Lovozero alkaline massif, Kola Peninsula, Russia.**Name:** Honors Russian crystallographer Alexander Alexandrovich *Voronkov* (1928-1982).**Type Material:** A.E. Fersman Mineralogical Museum, RAS, Moscow, Russia (3620/1-4).

References: (1) Khomyakov, A.P., G.N. Nechelyustov, and R.K. Rastsvetaeva (2009) Voronkovite, Na₁₅(Na,Ca,Ce)₃(Mn,Ca)₃Fe₃Zr₃Si₂₆O₇₂(OH,O)₄Cl·H₂O, a new mineral species of the eudialyte group from the Lovozero Alkaline Pluton, Kola Peninsula, Russia. *Geology of Ore Deposits*, 51, 750-756. (2) Rastsvetaeva, R.K. and N.V. Chukanov (2012) Classification of eudialyte-group minerals. *Geology of Ore Deposits*, 54, 487-497.