Burovaite-Ca $(Na, K)_4Ca_2(Ti, Nb)_8[Si_4O_{12}]_4(OH, O)_8 \cdot 12H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As striated prismatic crystals to 8 mm; crystals are pseudo-orthorhombic due to multiple twinning; in radial intergrowths with labuntsovite-Mn.

Physical Properties: *Cleavage*: None. *Fracture*: n.d. *Tenacity*: n.d. Hardness = n.d.
D(meas.) = 2.73 D(calc.) = n.d.

Optical Properties: *Color*: White. *Streak*: n.d. *Luster*: Vitreous.
Optical Class: Biaxial. $\alpha = 1.659$ $\beta = 1.669$ $\gamma = 1.770$ 2V(meas.) = 19º-30º
2V(calc.) = n.d. *Orientation*: $X \approx a$, $Y \approx b$, $Z \approx c$.

Cell Data: *Space Group*: *C*2/*m*. $a = 14.529(3)$ $b = 14.203(3)$ $c = 7.899(1)$ $\beta = 117.37(1)°$

X-ray Powder Pattern: Mt. Khibinpakhkchorr, Khibiny pluton, Kola Peninsula, Russia.
3.25 (100), 7.08 (70), 3.11 (70), 2.49 (70), 1.712 (70), 1.577 (70), 1.444 (70)

Chemistry:

	(1)
Na_2O	3.72
K_2O	2.76
CaO	4.22
SrO	0.47
BaO	0.23
MnO	0.01
Fe_2O_3	0.30
Al_2O_3	0.14
SiO_2	42.02
TiO_2	17.30
Nb_2O_5	15.21
H_2O	12.60
Total	98.98

(1) Mt. Khibinpakhkchorr, Khibiny pluton, Russia; average electron microprobe analysis and IR spectroscopy, H_2O by derivatograph; corresponds to $(Na_{3.10}K_{1.07}Ca_{0.37}Sr_{0.04}Ba_{0.04})_{\Sigma=4.62}(Ca_{1.28}Zn_{0.01})_{\Sigma=1.29}(Ti_{4.97}Nb_{2.56}Fe_{0.08}Ta_{0.02})_{\Sigma=7.63}(Si_{15.93}Al_{0.07})_{16}O_{48}[(OH)_{6.70}O_{0.93}]_{\Sigma=7.63} \cdot 12H_2O$.

Mineral Group: Labuntsovite group.

Occurrence: In cavities in microcline in the hydrothermal zone of aegirine-microcline pegmatite.

Association: labuntsovite-Mn, lemmleynite-Ba, analcime, apophyllite.

Distribution: at Mt. Khibinpakhkchorr, Khibiny pluton, Kola Peninsula, Russia.

Name: honors chemist Tat'yana Alexandrovna Burova (1896-1975) who studied minerals of the Khibiny, Lovozero, and Vishnevye gory plutons, including the labuntsovite group.

References: (1) Azarova, Y.V., Z.V. Shlyukova, A.A. Zolotarev, and N.I. Organova (2009) Burovaite-Ca, $(Na,K)_4Ca_2(Ti,Nb)_8[Si_4O_{12}]_4(OH,O)_8 \cdot 12H_2O$, a new labuntsovite-group mineral species and its place in low-temperature mineral formation in pegmatites of the Khibiny Pluton, Kola Peninsula, Russia. Geology of Ore Deposits 51, 774-783.