

**Burovaite-Ca****(Na, K)<sub>4</sub>Ca<sub>2</sub>(Ti, Nb)<sub>8</sub>[Si<sub>4</sub>O<sub>12</sub>]<sub>4</sub>(OH, O)<sub>8</sub>·12H<sub>2</sub>O**

**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.  $\alpha = 1.659$   $\beta = 1.669$   $\gamma = 1.770$   $2V(\text{meas.}) = 19^\circ\text{-}30^\circ$   $2V(\text{calc.}) = \text{n.d.}$  *Orientation:*  $X \approx a$ ,  $Y \approx b$ ,  $Z \approx c$ .

**Cell Data:** *Space Group:* C2/m.  $a = 14.529(3)$   $b = 14.203(3)$   $c = 7.899(1)$   $\beta = 117.37(1)^\circ$

**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)

<b>Chemistry:</b>	(1)
Na <sub>2</sub> O	3.72
K <sub>2</sub> O	2.76
CaO	4.22
SrO	0.47
BaO	0.23
MnO	0.01
Fe <sub>2</sub> O <sub>3</sub>	0.30
Al <sub>2</sub> O <sub>3</sub>	0.14
SiO <sub>2</sub>	42.02
TiO <sub>2</sub>	17.30
Nb <sub>2</sub> O <sub>5</sub>	15.21
<u>H<sub>2</sub>O</u>	<u>12.60</u>
Total	98.98

(1) Mt. Khibinpakhkchorr, Khibiny pluton, Russia; average electron microprobe analysis and IR spectroscopy, H<sub>2</sub>O by derivatograph; corresponds to (Na<sub>3.10</sub>K<sub>1.07</sub>Ca<sub>0.37</sub>Sr<sub>0.04</sub>Ba<sub>0.04</sub>) $\Sigma=4.62$  (Ca<sub>1.28</sub>Zn<sub>0.01</sub>) $\Sigma=1.29$ (Ti<sub>4.97</sub>Nb<sub>2.56</sub>Fe<sub>0.08</sub>Ta<sub>0.02</sub>) $\Sigma=7.63$ (Si<sub>15.93</sub>Al<sub>0.07</sub>)<sub>16</sub>O<sub>48</sub>[(OH)<sub>6.70</sub>O<sub>0.93</sub>] $\Sigma=7.63$ ·12H<sub>2</sub>O.

**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)<sub>4</sub>Ca<sub>2</sub>(Ti,Nb)<sub>8</sub>[Si<sub>4</sub>O<sub>12</sub>]<sub>4</sub>(OH,O)<sub>8</sub>·12H<sub>2</sub>O, 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.