

**Crystal Data:** Monoclinic. *Point Group:* *m*. As equant grains to 7 cm, and in aggregates to 15 cm.

**Physical Properties:** *Cleavage:* Imperfect on {110}. *Tenacity:* Brittle. *Fracture:* Conchoidal. Hardness = ~5 D(meas.) = 2.61 D(calc.) = 2.63 Nonfluorescent.

**Optical Properties:** Transparent. *Color:* Dark cherry-red to reddish brown. *Streak:* White. *Luster:* Vitreous.

*Optical Class:* Biaxial (-).  $\alpha = 1.546(1)$   $\beta = 1.574(1)$   $\gamma = 1.575(1)$   $2V(\text{meas.}) = <10^\circ$

**Cell Data:** Space Group: *Cm*.  $a = 10.589(7)$   $b = 10.21(8)$   $c = 7.355(5)$   $\beta = 92.91(5)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Mount Alluaiv, Lovozero massif, Kola Peninsula, Russia. 5.29 (100), 3.238 (100), 3.329 (74), 7.37 (44), 2.981 (39), 2.553 (37)

<b>Chemistry:</b>	(1)
Na <sub>2</sub> O	12.43
K <sub>2</sub> O	0.11
CaO	0.13
MnO	1.61
FeO	0.09
Ce <sub>2</sub> O <sub>3</sub>	0.09
SiO <sub>2</sub>	57.67
TiO <sub>2</sub>	0.19
ZrO <sub>2</sub>	18.85
HfO <sub>2</sub>	0.22
Nb <sub>2</sub> O <sub>5</sub>	0.07
<u>H<sub>2</sub>O</u>	<u>8.90</u>
Total	100.36

(1) Mount Alluaiv, Lovozero massif, Kola Peninsula, Russia; electron microprobe analysis, Na by atomic absorption and H<sub>2</sub>O by the Penfield method; corresponding to Na<sub>2.51</sub>K<sub>0.01</sub>Mn<sup>2+</sup><sub>0.14</sub>Ca<sub>0.01</sub>Fe<sub>0.01</sub>Zr<sub>0.96</sub>Ti<sub>0.01</sub>Hf<sub>0.01</sub>Si<sub>6.00</sub>O<sub>12.76</sub>(OH)<sub>5.24</sub>•0.47H<sub>2</sub>O or as a structural formula (Na<sub>1.54</sub>K<sub>0.01</sub>(H<sub>2</sub>O)<sub>0.47</sub>)Na<sub>0.78</sub>(Na<sub>0.19</sub>Mn<sub>0.14</sub>Ca<sub>0.01</sub>Fe<sub>0.01</sub>)(Zr<sub>0.96</sub>Ti<sub>0.01</sub>Hf<sub>0.01</sub>)[Si<sub>6</sub>O<sub>12</sub>(OH)<sub>3</sub>{(OH)<sub>2.24</sub>O<sub>0.76</sub>}].

**Mineral Group:** Lovozerite group, zirsinalite-lovozerite subgroup.

**Occurrence:** In a hyperagpaitic pegmatite in an alkaline massif.

**Association:** Aegirine, microcline, nepheline, sodalite, eudialyte, lomonosovite, ussingite, mangan-neptunite.

**Distribution:** At Mount Alluaiv, Lovozero alkaline massif, Kola Peninsula, Russia.

**Name:** Honors crystallographer Galina P. *Litvinskaya* (1920-1994), Moscow State University, Russia.

**Type Material:** A.E. Fersman Mineralogical Museum, Moscow, Russia.

**References:** (1) Pekov, I.V., I.A. Ekimenkova, N.V. Chukanov, A.E. Zadov, N.A. Yamnova, and Yu.K. Egorov-Tismenko (2000) Litvinskite Na<sub>2</sub>(□,Na,Mn)Zr[Si<sub>6</sub>O<sub>12</sub>(OH,O)<sub>6</sub>] - a new mineral of the lovozerite group. *Zapiski Vseross. Mineral. Obshch.*, 129(1), 45-53 (in Russian, English abs.). (2) (2001) *Amer. Mineral.*, 86, 377 (abs. ref. 1). (3) Pekov, I.V., S.V. Krivovichev, A.A. Zolotarev, V.N. Yakovenchuk, T. Armbruster, and Y.A. Pakhomovsky (2009) Crystal chemistry and nomenclature of the lovozerite group. *Eur. J. Mineral.*, 21, 1061-1071.