

Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals, to 2 mm, are poorly formed and divergent, with indistinct terminations. They are elongate on [010], and their major forms are probably pinacoids {100} and {001}. As massive granular pseudomorphs of vuonnemite, to 1 cm.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. *Hardness* = 5
D(meas.) = 2.79(1) D(calc.) = 2.775

Optical Properties: Transparent to translucent. *Color:* White, pinkish brown. *Streak:* White.
Luster: Vitreous.

Optical Class: Biaxial (+). $\alpha = 1.680(1)$ $\beta = 1.682(2)$ $\gamma = 1.762(3)$ $2V(\text{meas.}) = 25(10)^\circ$
 $2V(\text{calc.}) = 19^\circ$ *Orientation:* $Y = b$. *Pleochroism:* Weak; $X = Z$ = colorless, Y = pale yellowish. *Dispersion:* None.

Cell Data: *Space Group:* C2/m. $a = 14.6365(6)$ $b = 14.2059(5)$ $c = 7.8919(4)$
 $\beta = 117.467(5)^\circ$ $Z = 2$

X-ray Powder Pattern: Mount Karnasurt, Lovozero massif, Kola Peninsula, Russia.
7.100 (100), 6.999 (88), 4.985 (78), 3.167 (46), 3.246 (43), 3.252 (42), 6.476 (38)

Chemistry:	(1)	(2)	(1)	(2)	
Na ₂ O	1.14		Fe ₂ O ₃	0.19	
K ₂ O	3.61	7.68	Al ₂ O ₃	0.13	
CaO	3.56	4.57	SiO ₂	39.29	39.19
SrO	3.47		TiO ₂	9.96	6.51
BaO	1.04		Nb ₂ O ₅	27.34	32.50
MnO	0.84		<u>H₂O</u>	<u>9.23</u>	<u>9.55</u>
ZnO	0.05		Total	100.85	100.00

(1) Mount Karnasurt, Lovozero massif, Kola Peninsula, Russia; average of 8 electron microprobe analyses, H₂O by TGA; corresponding to $(\text{K}_{0.93}\text{Na}_{0.45}\text{Sr}_{0.41}\text{Ca}_{0.15}\text{Ba}_{0.08})_{\Sigma=2.02}$
 $(\text{Ca}_{0.62}\text{Mn}_{0.14}\text{Fe}_{0.03}\text{Zn}_{0.01})_{\Sigma=0.80}(\text{Nb}_{2.51}\text{Ti}_{1.52})_{\Sigma=4.03}(\text{Si}_{7.97}\text{Al}_{0.03})_{\Sigma=8}\text{O}_{24}[\text{O}_{2.86}(\text{OH})_{1.14}]_{\Sigma=4} \cdot 5.67\text{H}_2\text{O}$.
(2) $\text{K}_2\text{Ca}(\text{Nb}_3\text{Ti})\text{Si}_8\text{O}_{24}(\text{OH})\text{O}_3 \cdot 6\text{H}_2\text{O}$.

Mineral Group: Labuntsovite group, kuzmenkoite subgroup.

Occurrence: As alteration of vuonnemite formed in hydrothermal assemblages of peralkaline pegmatites related to agpaite feldspathoidal syenites.

Association: Microcline, natrolite, aegirine, organovaite-Mn, organovaite-Zn, beryllite, epididymite, altered steenstrupine-(Ce), ranciéite (pseudomorph after sérandite), yakhontovite; or komarovite, organovaite-Mn, strontiopyrochlore.

Distribution: Pegmatite #61 at Mount Karnasurt, Lovozero massif, Kola Peninsula, Russia.

Name: Signifies the structural analog of *gjerdingenite*-Mn with dominant *Ca* in the *D* structural site.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (92111).

References: (1) Pekov, I.V., N.V. Chukanov, N.A. Yamnova, A.E. Zadov, and P. Tarassoff (2007) Gjerdingenite-Na and Gjerdingenite-Ca, two new mineral species of the labuntsovite group. *Can. Mineral.*, 45, 529-539. (2) Yamnova, N. A., I. V. Pekov, Yu. K. Kabalov, N. V. Chukanov, and J. Shneider (2007) Crystal structures of gjerdingenite-Ca and gjerdingenite-Na, new minerals of the labuntsovite group. *Doklady Akademii Nauk*, 414(1), 57-62 (in Russian), English translation *Doklady Chemistry*, 414(1), 109-114. (3) (2007) *Amer. Mineral.*, 92, 1776-1777 (abs. ref. 1).