

Ilmajokite

(Na, Ce, Ba)₂TiSi₃O₅(OH)₁₀•nH₂O

©2001 Mineral Data Publishing, version 1.2

Crystal Data: Monoclinic. *Point Group:* 2/m or m. As bunches of crystals to 2 mm, granular deposits, and crusts.

Physical Properties: *Cleavage:* Perfect on rhombic prism and pinacoid, intersecting at 72°. *Tenacity:* Brittle. Hardness = 1 D(meas.) = 2.20(2) D(calc.) = n.d. Water-soluble.

Optical Properties: Transparent to translucent. *Color:* Bright yellow. *Luster:* Vitreous. *Optical Class:* Biaxial (+). $\alpha = 1.573$ $\beta = 1.576$ $\gamma = 1.579$ $2V(\text{meas.}) = 90^\circ$

Cell Data: *Space Group:* C2/c or Cc. $a = 39.80(4)$ $b = \text{n.d.}$ $c = 29.83(5)$ $\beta = 96^\circ 38'$ $Z = \text{n.d.}$

X-ray Powder Pattern: Lovozero massif, Russia.
11.5 (10), 4.3 (10), 2.44 (10), 10.2 (9), 3.1 (9), 10.9 (7), 3.7 (7)

Chemistry:	(1)	(1)
SiO ₂	35.55	CaO 0.04
TiO ₂	16.95	SrO 0.02
ZrO ₂	0.03	BaO 2.65
Al ₂ O ₃	0.28	Na ₂ O 12.40
RE ₂ O ₃	4.93	K ₂ O 0.40
Fe ₂ O ₃	0.07	H ₂ O ⁺ 16.78
Nb ₂ O ₅	0.02	H ₂ O ⁻ 7.76
Ta ₂ O ₅	0.01	CO ₂ 1.46
		<hr/>
		Total 99.36

(1) Lovozero massif, Russia; RE₂O₃ = La₂O₃ 26.8%, Ce₂O₃ 51.2%, Pr₂O₃ 3.6%, Nd₂O₃ 17.8%, Sm₂O₃ 17.8%; after deduction of CO₂ as nahcolite, corresponds to (Na_{8.8}RE_{0.7}Ba_{0.5})_{Σ=10.0} Ti₅(Si_{13.9}Al_{0.1})_{Σ=14.0}O₂₂(OH)₄₄•nH₂O.

Occurrence: On the walls of cavities in the central natrolite zone of pegmatites in a differentiated alkalic massif.

Association: Sphalerite, halite, mountainite, nahcolite, aegirine.

Distribution: On Mt. Karnsurt, Lovozero massif, Kola Peninsula, Russia.

Name: For the locality near the Il'majok River, Kola Peninsula, Russia.

Type Material: Geology Museum, Kola Branch, Academy of Sciences, 3152, 3153; Mining Institute, St. Petersburg, 1061/1-2; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 74041, 74080, 74490, 74491; National School of Mines, Paris, France.

References: (1) Bussen, I.V., L.F. Gannibal, E.A. Goiko, A.N. Mer'kov, and A.P. Nedorezova (1972) Ilmajokite, a new mineral from the Lovozero Tundra. Zap. Vses. Mineral. Obsch., 101, 75-79 (in Russian). (2) (1973) Amer. Mineral., 58, 139-140 (abs. ref. 1). (3) Goiko, E.A., I.V. Bussen, L.F. Gannibal, and E.A. Lipatova (1974) Ilmajokite. Uch. Zap. Leningr. Gos. Univ., Ser. Biol. Nauk 278, 174-181 (in Russian). (4) (1976) Chem. Abs., 84, 7517 (abs. ref. 3).