

Ilmajokite

(Na, Ce, Ba)₂TiSi₃O₅(OH)₁₀•nH₂O

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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(meas.) = 90°

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
		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. Obshch., 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).