

Lintisite

$\text{Na}_3\text{LiTi}_2(\text{Si}_2\text{O}_6)_2\text{O}_2 \cdot 2\text{H}_2\text{O}$

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Needlelike crystals, elongated along [001], flattened on {100}, to 5 mm; in fibrous or columnar aggregates. *Twinning:* Twin axis [100].

Physical Properties: *Cleavage:* {100} and {010}, perfect. *Fracture:* Splintery. *Tenacity:* Elastic. Hardness = 5–6 D(meas.) = 2.77(5) D(calc.) = 2.825 Fluoresces weak yellow in UV.

Optical Properties: Transparent. *Color:* Colorless, white to pale yellow. *Luster:* Vitreous on fractures, pearly on cleavages.

Optical Class: Biaxial (-). *Orientation:* $Y = b; Z \wedge c = 2^\circ$. *Dispersion:* $r < v$, strong. $\alpha = 1.672(2)$ $\beta = 1.739(2)$ $\gamma = [1.802]$ $2V(\text{meas.}) = 85(1)^\circ$

Cell Data: *Space Group:* $C2/c$. $a = 28.583(4)$ $b = 8.600(1)$ $c = 5.219(1)$ $\beta = 91.03(2)^\circ$ $Z = 4$

X-ray Powder Pattern: Lovozero massif, Russia. 14.29 (s), 2.996 (s), 6.39 (m), 4.77 (m), 3.69 (m), 2.744 (m), 2.709 (m)

Chemistry:

	(1)
SiO ₂	44.03
TiO ₂	27.68
Nb ₂ O ₅	1.10
FeO	0.28
MnO	0.05
Li ₂ O	2.68
Na ₂ O	16.72
K ₂ O	0.03
LOI	6.55
Total	99.12

(1) Lovozero massif, Russia; by electron microprobe, average of four analyses; Li by flame photometry, loss on ignition taken as H₂O; corresponding to $\text{Na}_{2.97}\text{Li}_{0.99}(\text{Ti}_{1.91}\text{Nb}_{0.05}\text{Fe}_{0.02})_{\Sigma=1.98}\text{Si}_{4.03}\text{O}_{14} \cdot 2.00\text{H}_2\text{O}$.

Occurrence: Coating and replacing lorenzenite in ultra-agpaitic syenite pegmatites in a differentiated alkalic massif (Lovozero massif, Russia); in sodalite xenoliths in an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

Association: Lorenzenite, nepheline, sodalite, potassic feldspar, arfvedsonite, aegirine, eudialyte, ussingite, gmelinite (Lovozero massif, Russia); ussingite, natrolite, sérandite, aegirine, steenstrupine, sidorenkite, rasvumite, eudialyte, terskite, vuonnemite, vitusite (Mont Saint-Hilaire, Canada).

Distribution: On Mt. Alluaiv, Lovozero massif, Kola Peninsula, Russia. From Mont Saint-Hilaire, Quebec, Canada.

Name: For Lithium, sodium (Natrium), Titanium, and Silicon in the composition.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, p503/3; The Natural History Museum, London, England, 1994,13.

References: (1) Khomyakov, A.P., L.I. Polezhaeva, S. Merlino, and M. Pasero (1990) Lintisite $\text{Na}_3\text{LiTi}_2\text{Si}_4\text{O}_{14} \cdot 2\text{H}_2\text{O}$ – a new mineral. Zap. Vses. Mineral. Obshch., 119(3), 76–80 (in Russian). (2) (1991) Amer. Mineral., 76, 1730 (abs. ref. 1). (3) Merlino, S., M. Pasero, and A.P. Khomyakov (1990) The crystal structure of lintisite, $\text{Na}_3\text{LiTi}_2[\text{Si}_2\text{O}_6]_2\text{O}_2 \cdot 2\text{H}_2\text{O}$, a new titanosilicate from Lovozero (USSR). Zeits. Krist., 193, 137–148. (4) Chao, G.Y., R.P. Conlon, and J. Van Velthuizen (1990) Mont Saint-Hilaire unknowns. Mineral. Record, 21, 363–368 [UK74 = lintisite].

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