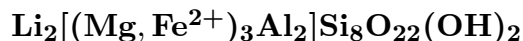


Clinoholmquistite

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Crystal Data: Monoclinic. *Point Group:* $2/m$. As elongated prismatic crystals.**Physical Properties:** *Cleavage:* [Perfect on {110}, intersecting at $\sim 56^\circ$ and $\sim 124^\circ$; partings on {100}, {001}.] *Tenacity:* [Brittle.] *Hardness* = [5–6] *D*(meas.) = 3.00 *D*(calc.) = [3.07]**Optical Properties:** [Transparent to translucent.] *Color:* [Blue.] *Luster:* [Vitreous.]
Optical Class: Biaxial (-). *Orientation:* $Y = b$; $Z = c$; $X \wedge a = 15^\circ\text{--}16^\circ$. $\alpha = 1.610$ $\beta = 1.627$
 $\gamma = 1.633$ $2V$ (meas.) = $55^\circ\text{--}61^\circ$ **Cell Data:** *Space Group:* $P2/m$. $a = 9.80(2)$ $b = 17.83(3)$ $c = 5.30(1)$ $\beta = 109^\circ 06'$
 $Z = 2$ **X-ray Powder Pattern:** Tastyg deposit, Russia.

7.93 (100), 2.985 (100), 2.70 (100), 4.40 (90), 1.371 (90), 1.614 (80), 1.571 (70)

Chemistry:

	(1)		(1)
SiO ₂	57.68	CaO	[1.80]
TiO ₂	0.00	Li ₂ O	3.37
Al ₂ O ₃	13.52	Na ₂ O	1.74
Fe ₂ O ₃	0.44	K ₂ O	0.28
FeO	5.87	F	1.70
MnO	0.45	H ₂ O ⁺	1.67
MgO	9.37	-O = F ₂	0.71
		<u>Total</u>	[97.18]

(1) Tastyg deposit, Russia; recalculated to remove calcite contamination; corresponds to $(\text{Li}_{1.79}\text{Ca}_{0.21})_{\Sigma=2.00}(\text{Mg}_{1.93}\text{Fe}_{0.68}^{2+}\text{Al}_{0.21}\text{Li}_{0.08}\text{Fe}_{0.05}^{3+}\text{Mn}_{0.05})_{\Sigma=3.00}\text{Al}_{2.00}\text{Si}_8\text{O}_{22}(\text{OH})_2$.**Polymorphism & Series:** Dimorphous with holmquistite; forms a series with magnesio-clinoholmquistite and ferro-clinoholmquistite.**Mineral Group:** Amphibole (Fe–Mn–Mg) group: 0.1 $\text{Mg}/(\text{Mg} + \text{Fe}^{2+})$ 0.89; $(\text{Ca} + \text{Na})_{\text{B}} < 1.34$; $\text{Li} \geq 1.0$.**Occurrence:** Partly replaced by holmquistite.**Association:** Holmquistite, calcite.**Distribution:** From the Tastyg spodumene deposit, Tuva, Siberia, Russia.**Name:** In allusion to its similarity to *holmquistite* and its monoclinic structure.**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 67493.**References:** (1) Ginzburg, I.V. (1965) Holmquistite and its structural variety clinoholmquistite. *Trudy Mineral. Muzeya Akad. Nauk SSSR*, 16, 73–89 (in Russian). (2) (1967) *Amer. Mineral.*, 52, 1585–1586 (abs. ref. 1). (3) Litvin, A.L., I.V. Ginzburg, L.N. Egorova, and A.A. Petrunina (1975) On the crystal structure of clinoholmquistite. *Konst. Svoistva Miner.*, 9, 3–6 (in Russian). (4) (1976) *Chem. Abs.*, 85, 65701 (abs. ref. 3).