

**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:*  $Y = b$ ;  $Z = c$ ;  $X \wedge a = 15^\circ\text{--}16^\circ$ .  $\alpha = 1.610$   $\beta = 1.627$   
 $\gamma = 1.633$   $2V(\text{meas.}) = 55^\circ\text{--}61^\circ$ **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 <sub>2</sub>	57.68	CaO	[1.80]
TiO <sub>2</sub>	0.00	Li <sub>2</sub> O	3.37
Al <sub>2</sub> O <sub>3</sub>	13.52	Na <sub>2</sub> O	1.74
Fe <sub>2</sub> O <sub>3</sub>	0.44	K <sub>2</sub> O	0.28
FeO	5.87	F	1.70
MnO	0.45	H <sub>2</sub> O <sup>+</sup>	1.67
MgO	9.37	-O = F <sub>2</sub>	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 Mg/(Mg + Fe<sup>2+</sup>) 0.89; (Ca + Na)<sub>B</sub> < 1.34; Li ≥ 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).