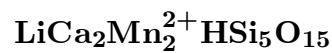


**Lithiomarsturite**

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**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . As nearly equant rhombic to prismatic euhedral crystals, to 3 mm, with {100} prominent, {010} and {001}; divergent bundles of crystals.

**Physical Properties:** *Cleavage:* {100} and {001}, good. *Tenacity:* Brittle. *Hardness* =  $\sim 6$   
D(meas.) = 3.32 D(calc.) = 3.27

**Optical Properties:** Transparent. *Color:* Pale pinkish brown to light yellow. *Streak:* Very light brown. *Luster:* Vitreous.

*Optical Class:* Biaxial (-). *Orientation:*  $X \wedge b = -7^\circ$ ;  $Y \wedge a = 28^\circ$ ;  $Z \wedge c = 6^\circ$ .

*Dispersion:*  $r > v$ , moderate.  $\alpha = 1.645(1)$   $\beta = 1.660(1)$   $\gamma = 1.666(1)$   $2V(\text{meas.}) = 59.9(8)^\circ$   
 $2V(\text{calc.}) = 64^\circ$

**Cell Data:** *Space Group:*  $[P\bar{1}]$  (by analogy to rhodonite).  $a = 7.652(3)$   $b = 12.119(3)$   
 $c = 6.805(2)$   $\alpha = 85.41(2)^\circ$   $\beta = 94.42(3)^\circ$   $\gamma = 111.51(2)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Foote mine, North Carolina, USA.

3.01 (100), 3.19 (90), 2.913 (90), 2.744 (60), 3.08 (50), 2.217 (50), 6.79 (20)

**Chemistry:**

|                   |        |
|-------------------|--------|
|                   | (1)    |
| SiO <sub>2</sub>  | 51.6   |
| FeO               | 6.9    |
| MnO               | 16.4   |
| MgO               | 0.7    |
| CaO               | 19.1   |
| Li <sub>2</sub> O | 2.6    |
| H <sub>2</sub> O  | [1.55] |
| Total             | [98.9] |

(1) Foote mine, North Carolina, USA; by electron microprobe, Li by ion microprobe, H<sub>2</sub>O calculated from stoichiometry; corresponds to  $\text{Li}_{1.01}\text{Ca}_{1.98}(\text{Mn}_{1.35}\text{Fe}_{0.56}\text{Mg}_{0.10})_{\Sigma=2.01}\text{H}_{1.00}\text{Si}_5\text{O}_{15}$ .

**Occurrence:** In small vugs within a complex Li-Sn-rich pegmatite.

**Association:** Tetrawickmanite, brannockite, parsettensite, bavenite, fluorapatite, albite, pyrite.

**Distribution:** At the Foote mine, Kings Mountain, Cleveland Co., North Carolina, USA.

**Name:** As the *lithium* analogue of *marsturite*.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 165268, 165460.

**References:** (1) Peacor, D.R., P.J. Dunn, J.S. White, Jr., J.D. Grice, and P.H. Chi (1990) Lithiomarsturite, a new member of the pyroxenoid group, from North Carolina. *Amer. Mineral.*, 75, 409–414.