

LiAl[SiO₄]*hP*24(180) *P*6₂22 – kdcba**LiAlSiO₄ β ht** [2]

Structural features: AlO₄ and SiO₄ tetrahedra share vertices to form a 3D-framework with twisted chains; Li in narrow channels of hexagonal cross-section parallel to [001] (partial disorder). Filled-up derivative of SiO₂ β-quartz.

Guth H., Heger G. (1979) [1]

AlLi_{0.90}O₄Si*a* = 0.526, *c* = 1.1095 nm, *c/a* = 2.109, *V* = 0.2658 nm³, *Z* = 3

site	Wyck.	sym.	<i>x</i>	<i>y</i>	<i>z</i>	occ.	atomic environment
O1	12 <i>k</i>	1	0.1935	0.4046	0.246		tetrahedron SiAlLi ₂
Si2	3 <i>d</i>	222	¹ / ₂	0	¹ / ₂		tetrahedron O ₄
Al3	3 <i>c</i>	222	¹ / ₂	0	0		tetrahedron O ₄
Li4	3 <i>b</i>	222	0	0	¹ / ₂	0.68	octahedron Li ₂ O ₄
Li5	3 <i>a</i>	222	0	0	0	0.22	octahedron Li ₂ O ₄

Transformation from published data: origin shift 0 0 ¹/₂Experimental: single crystal, diffractometer, neutrons, *R* = 0.060, *T* = 803 KRemarks: Phase stable at *T* > 760 K.

References: [1] Guth H., Heger G. (1979), Fast Ion Transp. Solids Electrodes Electrolytes, Proc. Int. Conf. 1979 1979, 499-502. [2] Schulz H., Tscherry V. (1972), Acta Crystallogr. B 28, 2174-2177.