$LiAl[SiO_4]$	*hP*93	(180) $P6_222 - k^4jihgf^2dca$

$LiAlSiO_4$ β rt [1], eucryptite β rt
Structural features: AlO_4 and SiO_4 tetrahedra share vertices to form a quartz-like framework with twisted chains; Li in narrow channels of hexagonal cross-section parallel to [001] (partial disorder).

Tscherry V. et al. (1972) [1]
$AlLiO_4Si$
a = 1.04818, c = 1.1175 nm, c/a = 1.066, V = 1.0633 nm^3, Z = 12

site	Wyck.	sym.	*x*	*y*	*z*	occ.	atomic environment
O1	12*k*	1	0.098	0.203	0.268		non-coplanar triangle SiAlLi
O2	12*k*	1	0.112	0.41	0.08433		tetrahedron $SiAlLi_2$
O3	12*k*	1	0.392	0.088	0.08733		tetrahedron $SiAlLi_2$
O4	12*k*	1	0.602	0.205	0.258		tetrahedron $SiAlLi_2$
Al5	6*j*	..2	0.2489	0.4978	$^1/_2$		tetrahedron O_4
Si6	6*i*	..2	0.2526	0.5052	0		tetrahedron O_4
Al7	6*h*	.2.	0.2489	0	$^1/_2$		tetrahedron O_4
Si8	6*g*	.2.	0.2513	0	0		tetrahedron O_4
Li9	6*f*	2..	$^1/_2$	0	0.1667	0.5	octahedron Li_2O_4
Li10	6*f*	2..	$^1/_2$	0	0.3333	0.5	octahedron Li_2O_4
Li11	3*d*	222	$^1/_2$	0	$^1/_2$	0.5	octahedron Li_2O_4
Li12	3*c*	222	$^1/_2$	0	0	0.5	octahedron Li_2O_4
Li13	3*a*	222	0	0	0		tetrahedron O_4

Transformation from published data ($P6_422$): new axes -a,-b,-c
Experimental: single crystal, diffractometer, X-rays, R = 0.128

Remarks: Phase stable at T < ~760 K. We took the cell parameters from Part I of the same work [2]. Short interatomic distances for partly occupied site(s). A fully ordered model in the same space group is also proposed (R = 0.057).

References: [1] Tscherry V., Schulz H., Laves F. (1972), Z. Kristallogr. 135, 175-198. [2] Tscherry V., Schulz H., Laves F. (1972), Z. Kristallogr. 135, 161-174.