

Lithium ${}^6\text{Li}$

Known to ancient civilizations.

Lithium was discovered in 1817 by J.A. Arfvedson at Stockholm, Sweden. Isolated in 1821 by W.T. Brande.

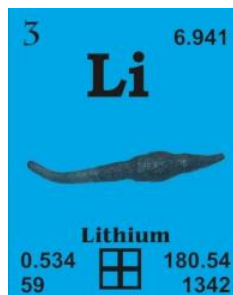
[Greek, lithos = stone]

French: lithium

German: lithium

Italian: litio

Spanish: litio



Atomic number	3
Density in g/cm ³	0.534
Atomic radius in pm	167
Atomic weight	6.941
Melting point in °C	180.54
Boiling point in °C	1342

Description: Lithium is a soft, silvery-white metal that reacts slowly with oxygen and water. It is used in lightweight alloys, especially with aluminium and magnesium, and in greases, batteries, glass, medicine and nuclear bombs.

LITHIUM SINGLE CRYSTAL PROPERTIES

State:	single crystal
Crystal structure:	cubic, bc
Production method:	Czochralski
Standard size:	diameter 5mm thickness 3mm
Orientation:	(100), (110) and (111)
Orientation accuracy:	<2°, <1°, <0.4° or <0.1°
Polishing:	as cut
Roughness of surface:	
Purity:	99.8%
	C 3
	H < 1
	O 9
	N < 5
	Cu 1.60
	Fe 1.80
	Ni < 1
	Pb 0.30
	Si 0.30
	Ga, Hf and Ta are below the detection limit
Density:	0.53 g/cm ³
Melting point:	180.54 °C / 453.69 °K

Typical analysis (ppm):



Boiling point:	1346.85 °C / 1620 °K
Molar volume:	13.00 cm ³
Thermal conductivity:	84.7 [300 K] Wm ⁻¹ K ⁻¹
Coefficient of linear thermal expansion:	56 x 10 ⁻⁶ K ⁻¹
Electrical resistivity:	8.55x 10 ⁻⁸ [273 K] Wm
Mass magnetic susceptibility:	+2.56 x 10 ⁻⁸ (s) kg ⁻¹ m ³
Young's modulus:	4.91 GPa
Rigidity modulus:	4.24 GPa
Bulk modulus:	n.a. GPa
Poisson's ratio:	0.36
Radii:	Li+ 78; atomic 152; covalent 123
Electronegativity:	0.98 (Pauling); 0.97 (Allred); 3.01 eV (absolute)
Effective nuclear charge:	1.30 (Slater); 1.28 (Clementi); 1.55 (Froese-Fischer)
Number of Isotopes (incl. nuclear isomers):	5
Isotope mass range:	5 -> 9
Crystal structure, (cell dimensions / pm), space group	cubic, bc
X-ray diffraction: mass absorption coefficients:	CuKα 0.716 (μ/r) / cm ² g ⁻¹ MoKα 0.217 (μ/r) / cm ² g ⁻¹
Neutron scattering length:	- 0.190 b/10 ⁻¹² cm
Thermal neutron capture cross-section:	70.5 sa / barns

