Lithium chloride

Inchi: InChI=1S/ClH.Li/h1H;/q;+1/p-1
InchiKey: KWGKDLIKAYFUFQ-UHFFFAOYSA-M
Formula: Cl3Li3
SMILES: [Cl-].[Li+]
Mol. weight [g/mol]: 127.18
CAS: 59217-69-5

Physical Properties

Property code	Value	Unit	Source
ie	10.17	eV	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
speedsl	1988.00	m/s	950.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)
speedsl	1973.00	m/s	976.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)
speedsl	1945.00	m/s	1003.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)
speedsl	1924.00	m/s	1030.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)

speedsl	1894.00	m/s	1062.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)	
speedsl	1879.00	m/s	1082.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)	
speedsl	1858.00	m/s	1110.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)	
speedsl	1825.00	m/s	1148.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)	
speedsl	1791.00	m/s	1181.00	Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs)	

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.53336e+01
Coeff. B	-1.68081e+04
Coeff. C	-8.75400e+01
Temperature range (K), min.	1056.15
Temperature range (K), max.	1656.15

Sources

Viscosity of Aqueous Electrolyte Solutions at High Temperatures and High Pressures. Viscosity B-coefficient. Sodium Iodide:	https://www.doi.org/10.1021/je060124c
Solubility of Sodium Oxalate in Concentrated Electrolyte Solutions:	https://www.doi.org/10.1021/acs.jced.7b00690
Vapor Pressures of Aqueous Soulutions with Mixed Salts of NaCl + KBr and NaBr + KCl:	https://www.doi.org/10.1021/je020144o
Experimental Determination and Thermodynamic Model of Solid-Liquid Equilibria in the Ternary System (LiCl + CaCl2 + H2O) at 273.15 K:	https://www.doi.org/10.1021/acs.jced.8b00777
Electrical Conductivity of Electrolytes Found In Natural Waters from (5 to 90) deg C:	https://www.doi.org/10.1021/je101012n
Surface Tension of Glycine, Alanine, Aminobutyric Acid, Norvaline, and Norleucine in Water and in Aqueous Solutions of Strong Electrolytes at Temperatures from (293.15 to 313.15) K:	https://www.doi.org/10.1021/acs.jced.7b00433
Density, Viscosity, and Electrical Conductivity Measurements on the Ternary System H2O + C2H5OH + LiCl over the Entire Ranges of Solvent Composition and LiCl Solubility from 288.15 K to 318.15 K:	https://www.doi.org/10.1021/je800150h
Mutual diffusion coefficients of 3-methyl-1-butanol + n-heptane and 2-methyl-1-butanol + n-heptane from (20 to 50) deg C:	https://www.doi.org/10.1016/j.jct.2018.10.023
Study of the Solubility, Supersolubility and Metastable Zone Width of Li2CO3 in the LiCl-NaCl-KCl-Na2SO4 System from 293.15 to 353.15K:	https://www.doi.org/10.1021/acs.jced.7b01012
A model for excess volumes of salty water-acetonitrile mixtures at 298.15 K:	https://www.doi.org/10.1016/j.fluid.2011.09.016
Studies on the Interactions of Saccharides and Methyl Glycosides with Lithium Chloride in Aqueous Solutions at (288.15 to 318.15) K:	https://www.doi.org/10.1021/je5001523
Enthalpies of formation and lattice enthalpies of alkaline metal acetates:	https://www.doi.org/10.1016/j.tca.2004.11.004
Osmotic coefficients and activity coefficients in binary water/5-(hydroxymethyl)furfural and in ternary water/5-(hydroxymethyl)furfural/salt solutions at 298.15 K:	https://www.doi.org/10.1016/j.jct.2019.105878
Thermodynamic Properties of LiCl + MgSO4 + H2O at Temperatures from 273.15 K to 373.15 K and Representation with Pitzer Ion Interaction Model:	https://www.doi.org/10.1021/acs.jced.5b00987
Study of Apparent Molar Volumes for Ionic Liquid 1-Ethyl-3-methyl Imidazolium Chloride in Aqueous Lithium Nitrate, Lithium Bromide, and Lithium Chloride Solutions at Temperatures (298.15 to 318.15) K:	https://www.doi.org/10.1021/acs.jced.5b00329
Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, Rb, Cs):	https://www.doi.org/10.1021/je100554g
Salt influence on MIBK/water liquid-liquid equilibrium: Measuring and modeling with ePC-SAFT and COSMO-RS:	https://www.doi.org/10.1016/j.fluid.2015.11.018
Study of thermodynamic properties of binary solutions of lithium bromide or lithium chloride with methanol:	https://www.doi.org/10.1016/j.fluid.2005.07.002
Solubilities, Densities, Refractive Indices, and pH Values of the Aqueous Ternary Systems (LiCl + LiB5O8 + H2O) and (Li2SO4 + LiB5O8 + H2O) at 288.15 K and 101 kPa:	https://www.doi.org/10.1021/acs.jced.9b00118
Measurement and modeling of vapor-liquid equilibria at high salt concentrations:	https://www.doi.org/10.1016/j.fluid.2004.10.018
Density of Methanolic Alkali Halide Salt Solutions by Experiment and Molecular Simulation:	https://www.doi.org/10.1021/je5009944
Solid Liquid Phase Equilibria of Ternary Systems LiCl LiBr H2O and CaCl2 CaBr2 H2O at 288.15 K:	https://www.doi.org/10.1021/acs.jced.6b00855
Mineral solubilities of salts in the three quaternary systems: LiCl-NaCl-MgCl2-H2O, LiCl-KCl-MgCl2-H2O and Li2SO4-K2SO4-MgSO4-H2O at 288.15 K:	https://www.doi.org/10.1016/j.jct.2018.12.011
Measuring and modeling aqueous electrolyte/amino-acid solutions with ePC-SAFT:	https://www.doi.org/10.1016/j.jct.2013.08.018
Measurement of the Effect of Salt on Vapor-Liquid Equilibria by Using Headspace Gas Chromatography:	https://www.doi.org/10.1021/je025561f
Solubilities, Densities, and Refractive Indices in the Salt-Water Ternary System (LiCl + LiBO2 + H2O) at T = 288.15 K and 298.15 K and p = 0.1 MPa:	https://www.doi.org/10.1021/acs.jced.5b00121
Densimetric and ultraacoustic study of LiCl in 1-butyl-3-methylimidazolium tetrafluoroborate and in water: A comparative interaction analysis:	https://www.doi.org/10.1016/j.jct.2017.02.004
Solubilities for Six Ternary Systems: NaCl + NH4Cl + H2O, KCl + NH4Cl + H2O, NaCl + LiCl + H2O, KCl + LiCl + H2O, NaCl + AlCl3 + H2O, and KCl + AlCl3 + H2O at T = (298.15 to 333) K:	https://www.doi.org/10.1021/je050111j
Salting-out effect of alkali metal chlorides (lithium, sodium, and potassium) on 2-cyanoguanidine aqueous solution: A solid-liquid equilibrium study:	https://www.doi.org/10.1016/j.fluid.2015.09.005
Ion-Solvent Interactions of Some Halides of Common Cations with Organic Solvent Mixtures by Conductometric, Volumetric, Viscometric, and Refractometric Techniques:	https://www.doi.org/10.1021/je900656c
Solubilities of six lithium salts in five non-aqueous solvents and in a few of their binary mixtures:	https://www.doi.org/10.1016/j.fluid.2017.12.034
Solubilities of Five Lithium Salts in 1-Butyl-3-methylimidazolium Dicyanamide and in 1-Butyl-3-methylimidazolium Tetrafluoroborate from 298.15 to 343.15 K:	https://www.doi.org/10.1021/acs.jced.8b00618
Vapor Pressure Measurement of the Ternary Systems H2O + LiBr + [Dmim]Cl, H2O + LiBr + [Dmim]BF4, H2O + LiCl + [Dmim]Cl, and H2O + LiCl + [Dmim]BF4:	https://www.doi.org/10.1021/je1009202
Phase Equilibria in the Ternary System (LiCl + Li2SO4 + H2O) at T = (288.15 and 308.15) K: Experimental Determination and Model Simulation:	https://www.doi.org/10.1021/acs.jced.5b00805
Investigations of the (p, ρ, T) Properties and Apparent Molar Volumes V0 of the LiCl + C2H5OH Solutions:	https://www.doi.org/10.1021/je700438d
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C59217695&Units=SI
A New Empirical Equation for the Specific Thermal Capacity of Aqueous LiCl Solutions in a Wide Range of Conditions:	https://www.doi.org/10.1007/s10765-019-2558-5
Molar heat capacities of aqueous 2-amino-2-ethyl-1,3-propanediol solutions and their ternary mixtures with lithium nitrate or lithium salts:	https://www.doi.org/10.1016/j.fluid.2013.12.017
Standard enthalpy of formation of lithium diphosphate:	https://www.doi.org/10.1016/j.jct.2013.03.009
Study on solid liquid phase equilibria in ionic liquid 1. The solubility of alkali chloride (MCl) in ionic liquid EMISE:	https://www.doi.org/10.1016/j.fluid.2006.10.018
Conductometric study of some alkali metal halides in (dimethyl sulfoxide + acetonitrile) at T = 298.15 K:	https://www.doi.org/10.1016/j.jct.2009.03.005
Isopiestic Measurements on Aqueous Solutions of Heavy Metal Sulfates: MSO4 + H2O (M = Mn, Co, Ni, Cu, Zn). 2. T = 373.15 K:	https://www.doi.org/10.1021/acs.jced.6b00046
Studies on Phase Equilibria in the Ternary System LiCl-SrCl2-H2O and the Quaternary System KCl-LiCl-SrCl2-H2O at 308 K:	https://www.doi.org/10.1021/acs.jced.9b00421

Experimental and theoretical studies of thermodynamics of lithium halide solutions - ethanol mixtures:	https://www.doi.org/10.1016/j.jct.2003.12.002
Unusual S-Shaped Binodal Curves of the System Water + Lithium Chloride + 2-Methyl-2-propanol:	https://www.doi.org/10.1021/je800588p
Phase equilibria in the ternary system (LiCl + Li2SO4+H2O) at T = 308.15 K and p = 0.1MPa: Experimental data and predictions using the Pitzer model:	https://www.doi.org/10.1016/j.fluid.2015.02.009
Temperature and salt addition effects on the solubility behaviour of some phenolic compounds in water:	https://www.doi.org/10.1016/j.jct.2006.06.014
Vapour pressures and densities of the mixed-solvent desiccants (glycols + water + salts):	https://www.doi.org/10.1016/j.jct.2008.12.003
Vapor pressures of lithium bromide or lithium chloride and ethanol solutions:	https://www.doi.org/10.1016/j.fluid.2006.02.012
Vapor Pressure Measurement of Ternary Systems LiCl + [Emim]Cl + H2O, LiBr + [Emim]Cl + H2O, and LiCl + [Emim]Br + H2O:	https://www.doi.org/10.1021/acs.jced.8b01217
Solubility of Li2CO3 in Na-K-Li-Cl brines from 20 to 90 C:	https://www.doi.org/10.1016/j.jct.2013.07.024
Studies on Phase Equilibria in the Quaternary Systems LiCl-KCl-MgCl2-H2O and Li2B4O7-Na2B4O7-MgB4O7-H2O at 273 K:	https://www.doi.org/10.1021/acs.jced.7b00800
Solubilities of imidazolium-based ionic liquids in aqueous salt solutions at 298.15 K:	https://www.doi.org/10.1016/j.jct.2011.03.002
Heat capacities of the mixed-solvents desiccants (glycols +water + salts):	https://www.doi.org/10.1016/j.tca.2009.01.008
Solid-liquid equilibrium in the aqueous system containing the chlorides of lithium, rubidium and magnesium at 323 K:	https://www.doi.org/10.1016/j.fluid.2014.01.037
Solubility Measurement and Thermodynamic Modeling of Solid-Liquid Equilibria in the MCl-M2B4O7-H2O (M = Li, Na) Systems:	https://www.doi.org/10.1021/acs.jced.9b00561
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Temperature Dependence of the Density of Aqueous Alkali Halide Salt Solutions by Experiment and Molecular Simulation:	https://www.doi.org/10.1021/je500420g
Vapour pressures, densities, and viscosities of the aqueous solutions containing (triethylene glycol or propylene glycol) and (LiCl or LiBr):	https://www.doi.org/10.1016/j.jct.2008.12.022
Measurement and Prediction of Solid + Liquid Equilibria in the Quaternary System LiCl-KCl-Li2SO4-K2SO4-H2O at 288.15 K:	https://www.doi.org/10.1021/acs.jced.9b00271
Volumetric Properties and Viscosity B-Coefficients for the Ternary Systems Epigallocatechin Gallate + MCl + H2O (M = Li, Na, K) at Temperatures 288.15 308.15 K:	https://www.doi.org/10.1021/acs.jced.5b00941
Thermodynamics Phase Equilibria of the Aqueous Ternary Systems LiCl + KCl (MgCl2) + H2O at 348 K:	https://www.doi.org/10.1021/je500700d
Salt effect on liquid-liquid equilibria of tetrahydrofuran/water/5-hydroxymethylfurfural systems:	https://www.doi.org/10.1016/j.fluid.2019.04.018
Electrical Conductivity of Lithium Chloride, Lithium Bromide, and Lithium Iodide Electrolytes in Methanol, Water, and Their Binary Mixtures:	https://www.doi.org/10.1021/acs.jced.9b00405
Thermodynamic properties of (LiCl + N,N-dimethylacetamide) and (LiBr + N,N-dimethylacetamide) at temperatures from (323.15 to 423.15) K:	https://www.doi.org/10.1016/j.jct.2004.09.015
Apparent molar volumes and heat capacities of aqueous lithium chloride, rubidium chloride, and cesium chloride at temperatures from (278.15 to 393.15) K and at the pressure 0.35 MPa:	https://www.doi.org/10.1016/j.jct.2004.01.004
Solid-Liquid Phase Equilibria in the Ternary Systems (LiCl + MgCl2 + H2O) and (Li2SO4 + MgSO4 + H2O) at 288.15 K:	https://www.doi.org/10.1021/je500946w
Effect of lithium chloride on the density and dynamic viscosity of choline chloride/urea deep eutectic solvent in the temperature range (303.15-358.15) K:	https://www.doi.org/10.1016/j.jct.2018.10.003
Isobaric specific heat capacity of typical lithium chloride liquid desiccants using scanning calorimetry:	https://www.doi.org/10.1016/j.jct.2013.10.028
Physics and Chemistry of Lithium Halides in 1,3-Dioxolane and Its Binary Mixtures with Acetonitrile probed by Conductometric, Volumetric, Viscometric, Refractometric and Acoustic Study:	https://www.doi.org/10.1016/j.tca.2012.08.009
Electrical Conductivity of LiCl-KCl-CsCl Melts:	https://www.doi.org/10.1021/acs.jced.5b00682
The study of thermodynamic properties of the ternary (1-ethyl-3-methylimidazolium hydrogen sulfate + lithium chloride + water) system and corresponding binary systems at different temperatures and ambient pressure:	https://www.doi.org/10.1016/j.jct.2016.07.003
Investigating the thermodynamic properties of LiCl in amide - water mixtures with increasing and e-decreasing solvent at 298.15K:	https://www.doi.org/10.1016/j.fluid.2014.08.026
Cheméo Relay (1.0):	
Density of ethanolic alkali halide salt solutions by experiment andmolecular simulation:	https://www.doi.org/10.1016/j.fluid.2015.08.005
Cheméo Relay (1.0, beta):	
Enthalpies of Dilution for myo-Inositol in Aqueous Alkali Metal Salt and Alkaline Earth Metal Salt Solutions:	https://www.doi.org/10.1021/je060492g
Osmotic and activity coefficients for five lithium salts in three non-aqueous solvents:	https://www.doi.org/10.1016/j.jct.2018.12.016
Phase equilibria in the aqueous ternary systems (LiCl + LiBO2 + H2O) and (Li2SO4+ LiBO2 + H2O) at 323.15 K and 0.1 MPa:	https://www.doi.org/10.1016/j.fluid.2016.12.013
The H2O-D2O solvent isotope effects on the molar volumes of alkali-chloride solutions at T = (288.15, 298.15, and 308.15) K:	https://www.doi.org/10.1016/j.jct.2007.05.002

Legend

ie:	Ionization energy

pvap: Vapor pressure
speedsl: Speed of sound in fluid