lithium chloride

Inchi: InChI=1S/ClH.Li/h1H;/q;+1/p-1
InchiKey: KWGKDLIKAYFUFQ-UHFFFAOYSA-M
Formula: ClLi
SMILES: [Cl-].[Li+]
Mol. weight [g/mol]: 42.39
CAS: 7447-41-8

Physical Properties

Property code	Value	Unit	Source
affp	827.00	kJ/mol	NIST Webbook
basg	800.50	kJ/mol	NIST Webbook
ea	0.59 ± 0.01	eV	NIST Webbook
ea	0.61 ± 0.02	eV	NIST Webbook
ea	1.28	eV	NIST Webbook
ie	9.80 ± 0.10	eV	NIST Webbook
ie	9.57	eV	NIST Webbook
ie	10.00	eV	NIST Webbook
ie	9.57	eV	NIST Webbook
ie	10.10	eV	NIST Webbook
ie	10.01 ± 0.02	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

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
Vapor pressures of lithium bromide or lithium chloride and ethanol solutions:	https://www.doi.org/10.1016/j.fluid.2006.02.012
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 to 333) K:	https://www.doi.org/10.1021/je050111j
Viscosity of Aqueous Electrolyte Solutions at High Temperatures and High Pressures. Viscosity B-Coefficient. Sodium Iodide:	https://www.doi.org/10.1021/je060124c
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Vapor Pressures of Aqueous Soulutions with Mixed Salts of NaCl + KBr and NaBr + KCl:	https://www.doi.org/10.1021/je020144o
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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
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Temperature Dependence of the Density of Aqueous Alkali Halide Salt Solutions by Experiment and Molecular Simulation:	https://www.doi.org/10.1021/je500420g
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
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Thermodynamics Phase Equilibria of the Aqueous Ternary Systems LiCl + KCl (MgCl2) + H2O at 348 K:	https://www.doi.org/10.1021/je500700d
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
Solubility of Sodium Oxalate in Concentrated Electrolyte Solutions:	https://www.doi.org/10.1021/acs.jced.7b00690
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
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
Mutual diffusion coefficients of 3-methyl-1-butanol + n-heptane and 2-methyl-1-butanol + n-heptane from 288.15 K to 318.15 K:	https://www.doi.org/10.1016/j.jct.2018.10.023
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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
Solid-Liquid Phase Equilibria of Ternary Systems LiCl-LiBr-H2O and SrCl2-SrBr2-H2O at 288.15 K:	https://www.doi.org/10.1021/acs.jced.6b00855
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
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
Solid-liquid equilibrium in the aqueous system containing the chlorides of lithium, sodium and magnesium at 323 K:	https://www.doi.org/10.1016/j.fluid.2014.01.037
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
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Molar heat capacities of aqueous 2-amino-2-ethyl-1,3-propanediol solutions and their ternary mixtures containing piperazine or lithium salts:	https://www.doi.org/10.1016/j.fluid.2013.12.017
Study of Apparent Molar Volumes for Ionic Liquid, 1-Ethyl-3-methyl imidazolium Chloride in Aqueous 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.5b00329
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Vapour pressures and densities of the mixed-solvent desiccants (glycols + water + salts):	https://www.doi.org/10.1016/j.jct.2008.12.003
Investigations of the (p, G, T) Properties and Apparent Molar Volumes V0 of the LiCl + C2H5OH Solutions:	https://www.doi.org/10.1021/je700438d
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
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
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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
Heat capacities of the mixed-solvent desiccants (glycols + water + salts):	https://www.doi.org/10.1016/j.tca.2009.01.008
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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
Apparent molar volumes and heat capacities of aqueous lithium chloride, rubidium chloride, and cesium chloride at temperatures from (278.15 to 393.15) K at the pressure 0.35 MPa:	https://www.doi.org/10.1016/j.jct.2004.01.004
Isobaric specific heat capacity of typical lithium chloride liquid desiccants using scanning calorimetry:	https://www.doi.org/10.1016/j.jct.2013.10.028
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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
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Electrical Conductivity of LiCl-KCl-CsCl Melts:	https://www.doi.org/10.1021/acs.jced.5b00682
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Legend

affp:	Proton affinity
basg:	Gas basicity
ea:	Electron affinity
ie:	Ionization energy
pvap:	Vapor pressure
speedsl:	Speed of sound in fluid