caesium chloride

Other names: Cesium chloride
Inchi: InChI=1S/ClH.Cs/h1H;/q;+1/p-1
InchiKey: AIYUHDOJVYHVIT-UHFFFAOYSA-M
Formula: ClCs
SMILES: [Cl-].[Cs+]
Mol. weight [g/mol]: 168.36
CAS: 7647-17-8

Physical Properties

Property code	Value	Unit	Source
ea	0.46 ± 0.10	eV	NIST Webbook
hfus	3.80	kJ/mol	Thermodynamic Characterization of the Congruently Melting Cs3CeCl6 Compound
ie	7.40	eV	NIST Webbook
ie	8.80	eV	NIST Webbook
ie	8.30 ± 0.10	eV	NIST Webbook
ie	8.30 ± 0.30	eV	NIST Webbook
ie	8.70 ± 0.10	eV	NIST Webbook
ie	8.50	eV	NIST Webbook
ie	8.30 ± 0.10	eV	NIST Webbook
ie	7.84 ± 0.05	eV	NIST Webbook
tf	918.00	K	Adiabatic compressibility along the two-phase saturation line for the molten (LiF + CsCl) system

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
rhos	3074.50	kg/m3	843.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point

rhos	3067.60	kg/m3	853.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	3060.20	kg/m3	863.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	3052.40	kg/m3	873.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	3046.00	kg/m3	883.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	3040.90	kg/m3	893.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	3039.50	kg/m3	903.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	3041.80	kg/m3	913.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.58087e+01
Coeff. B	-1.66564e+04
Coeff. C	-8.16900e+01
Temperature range (K), min.	1017.15
Temperature range (K), max.	1570.15

Sources

Solubilities, Densities, and Refractive Indices for the Ternary Systems Glycerin + MCl + H2O (M = Na, K, Rb, Cs) at (298.15 and 308.15) K:	https://www.doi.org/10.1021/je200443t
Partial molar volume of NaCl and CsCl in mixtures of water and methanol by experiment and molecular simulation:	https://www.doi.org/10.1016/j.fluid.2017.10.034
Enthalpies of formation and lattice enthalpies of alkaline metal acetates:	https://www.doi.org/10.1016/j.tca.2004.11.004
Equilibrium Phase Behavior of Water + Propan-1-ol or Propan-2-ol + Cesium Chloride at (298.15, 308.15, and 318.15) K:	https://www.doi.org/10.1021/je050265z
Phase equilibrium and activity coefficients in ternary systems at 298.15 K: RbCl/CsCl + ethylene carbonate + water:	https://www.doi.org/10.1016/j.jct.2016.03.027
Temperature Dependence of the Density of Aqueous Alkali Halide Salt Solutions by Experiment and Molecular Simulation:	https://www.doi.org/10.1021/je500420g
Solubility of Sodium Oxalate in Concentrated Electrolyte Solutions:	https://www.doi.org/10.1021/acs.jced.7b00690
Density of Methanolic Alkali Halide Salt Solutions by Experiment and Molecular Simulation:	https://www.doi.org/10.1021/je5009944
Phase Diagrams and Physicochemical Properties for the Ternary System (CsCl + NaCl + H2O) at T = (298.15, 308.15, and 318.15) K:	https://www.doi.org/10.1021/acs.jced.7b00023
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Isobaric specific heat capacity of water and aqueous cesium chloride solutions for temperatures between 298K and 370K at p = 0.1MPa:	https://www.doi.org/10.1016/j.jct.2005.10.010
Phase equilibria of the systems of CsCl + ErCl3 + H2O and CsCl + ErCl3 + HCl (~10.7%, ~14.4%) + H2O at T = 298.15 K and the standard molar enthalpies of formation of solid phase compounds:	https://www.doi.org/10.1016/j.jct.2013.09.016
Electrical Conductivity of Electrolytes Found In Natural Waters from (5 to 90) °C:	https://www.doi.org/10.1021/je101012n
Solution behavior of {(formamide/N-methylformamide/N,N-dimethylformamide) + CsCl + water} ternary systems at multiple temperatures:	https://www.doi.org/10.1016/j.jct.2014.05.013
Thermodynamic studies of (RbF + RbCl + H2O) and (CsF + CsCl + H2O) ternary systems from potentiometric measurements at T = 298.2 K:	https://www.doi.org/10.1016/j.jct.2016.08.014
Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs):	https://www.doi.org/10.1021/je100554g
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7647178&Units=SI
Thermodynamics of complexation of aqueous 18-crown-6 with rubidium and cesium ions: Apparent molar volumes and apparent molar heat capacities of aqueous (18-crown-6 + rubidium chloride) and (18-crown-6 + cesium chloride) at temperatures (278.15 to 393.15) K, at molalities (0.02 to 0.33) mol kg-1, and at the pressure 0.35 MPa:	https://www.doi.org/10.1016/j.jct.2005.05.005
Phase equilibria of CsCl-polyethylene glycol (PEG)-H2O at 298.15 K: Effect of different polymer molar masses (PEG1000/4000/6000):	https://www.doi.org/10.1016/j.jct.2019.03.020
Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point:	https://www.doi.org/10.1021/je901030f
Solid–Liquid Equilibrium (SLE) of the N,N-Dimethylacetamide (DMA) + MCl (M = Na, K, Rb, and Cs) + Water Ternary Systems at Multiple Temperatures:	https://www.doi.org/10.1021/je400959n
Solubilities, densities and refractive indices for the ternary systems ethylene glycol + MCl + H2O (M = Na, K, Rb, Cs) at (15 and 35) °C:	https://www.doi.org/10.1016/j.jct.2010.01.017
Activity Coefficients of CsCl in PEG 200 + H2O and PEG 600 + H2O Mixtures at 298.15 K:	https://www.doi.org/10.1021/acs.jced.7b00024
Electrical Conductivity of LiCl-KCl-CsCl Melts:	https://www.doi.org/10.1021/acs.jced.5b00682
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
Compositions, Densities, and Refractive Indices for the Ternary Systems Ethylene Glycol + NaCl + H2O, Ethylene Glycol + KCl + H2O, Ethylene Glycol + RbCl + H2O, and Ethylene Glycol + CsCl + H2O at 298.15 K:	https://www.doi.org/10.1021/je900630n
Volumetric properties and volumetric interaction parameters for the (CsCl + monosaccharide (D-galactose, D-mannose) + water) systems at T = 298.15 K:	https://www.doi.org/10.1016/j.jct.2004.04.010
Water Activity and Solubility Measurements and Model Simulation of the MgCl2 + CsCl + H2O Ternary System at 323.15 K:	https://www.doi.org/10.1021/acs.jced.7b00459
Thermodynamic Characterization of the Congruently Melting Cs3CeCl6 Compound:	https://www.doi.org/10.1021/je8002223
Thermochemistry of dicesium calcium tetraborate octahydrate:	https://www.doi.org/10.1016/j.tca.2006.05.020
Thermodynamics and Phase Equilibrium of the System CsCl MgCl2 H2O at 298.15 K:	https://www.doi.org/10.1021/acs.jced.6b00952
Measurement and Correlation of Solubilities and Solution Thermodynamics for N,N-Diethylformamide + MCl (M = Na, K, Rb and Cs) + Water Systems in the Temperature Range 288.15-338.15 K:	https://www.doi.org/10.1021/acs.jced.5b01043
Ultrasound velocity in dissolving alkali halide melts:	https://www.doi.org/10.1016/j.jct.2010.10.021
Synthesis, characterization and thermodynamic properties of NaCs[B4O5(OH)4]·4H2O:	https://www.doi.org/10.1016/j.tca.2008.11.003
Measurements and Correlations of the Solid Liquid Equilibrium of RbCl/CsCl + [CnmimCl] (n = 2, 4, 6, 8) + H2O Ternary Systems at T = (288.15, 298.15, and 308.15) K:	https://www.doi.org/10.1021/je4007986
Adiabatic compressibility along the two-phase saturation line for the molten (KF + CsCl) system:	https://www.doi.org/10.1016/j.jct.2019.07.003
Solubility of RbCl and CsCl in pure water at subzero temperatures, heat capacity of RbCl(aq) and CsCl(aq) at T = 298.15 K, and thermodynamic modeling of RbCl + H2O and CsCl + H2O systems:	https://www.doi.org/10.1016/j.jct.2016.09.031

Legend

ea:	Electron affinity
hfus:	Enthalpy of fusion at standard conditions
ie:	Ionization energy
pvap:	Vapor pressure
rhos:	Solid Density
tf:	Normal melting (fusion) point