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 ± 0.10	eV	NIST Webbook
ie	7.84 ± 0.05	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
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

Ultrasound velocity in dissolving alkali halide melts:	https://www.doi.org/10.1016/j.jct.2010.10.021
Thermodynamic Characterization of the Congruently Melting Cs3CeCl6 Compound	https://www.doi.org/10.1021/je8002223
Phase equilibria of CsCl-polyethylene glycol (PEG)-H2O at 298.15 K: Effect of different polymer molar masses	https://www.doi.org/10.1016/j.jct.2019.03.020
Volumetric properties and volumetric interaction parameters for the PEG1000+H2O+NaCl ternary systems at T = 298.15 K	https://www.doi.org/10.1016/j.jct.2004.04.010
Electrochemical Properties of the systems of CsCl + ErCl3 + H2O and CsCl + ErCl3 + HCl	https://www.doi.org/10.1016/j.jct.2013.09.016
Equilibrium Phase Behavior at 298.15 K and Pressure 1 atm in the Binary Systems of Lactose, Cellobiose, and Trehalose with Water	https://www.doi.org/10.1021/je050265z
Molar Enthalpies of Solution of Some Phase-Change Compounds: Compositions, Densities, and Formation of Solid Phase Compounds	https://www.doi.org/10.1021/je900630n
Refractive Indices for the Ternary Systems Ethylene Glycol + NaCl + H2O, Ethylene Glycol + KCl + H2O, Ethylene Glycol + KBr + H2O, and Ethylene Glycol + NaBr + H2O at 298.15 K	https://www.doi.org/10.1021/acs.jced.5b01043
Thermodynamic studies of PEG + RbCl + H2O and CsCl + H2O ternary systems at 298.15 K	https://www.doi.org/10.1016/j.jct.2016.08.014
Density of binary aqueous alkali chlorides and their eutectic mixtures near the melting point	https://www.doi.org/10.1021/je901030f
Measurement and Correlation of Solubilities and Solution Thermodynamic Properties of RbCl + H2O, KCl + H2O, NaCl + H2O, and CsCl + H2O Ternary Systems at 298.15 K, 318.15 K, and 338.15 K	https://www.doi.org/10.1021/acs.jced.7b00024
Molarity Coefficients of CsCl in PEG 200 H2O and PEG 600 H2O Mixtures at 298.15 K:	https://www.doi.org/10.1021/je200443t
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/10.1016/j.tca.2006.05.020
Thermochemistry of cesium calcium tetraborate octahydrate:	https://www.doi.org/10.1016/j.fluid.2017.10.034
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.jct.2016.03.027
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.2005.10.010
Isobaric specific heat capacity of water and aqueous cesium chloride solutions at temperatures between 298K and 373K at p = 0.1 MPa:	https://www.doi.org/10.1016/j.jct.2004.01.004
Volumetric properties, and heat capacities of aqueous lithium chloride, lithium bromide, and cesium chloride at temperatures from (278.15 to 393.15) K at the pressure 0.35 MPa:	https://www.doi.org/10.1021/je500420g
Temperature Dependence of the Density of Aqueous Alkali Halide Salt Solutions and Correlations of the Molar Volumes	https://www.doi.org/10.1021/je4007986
Solid/Liquid Equilibrium of RbCl/CsCl + CrCl3 (n = 2, 4, 6, 8) + H2O Ternary Melts at T = (288.15, 298.15, and 308.15) K:	https://www.doi.org/10.1021/acs.jced.5b00682
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7647178&Units=SI
Water Activity and Solubility Measurements and Model Simulation of the CsCl-MgCl2-H2O Ternary System at 298.15 K	https://www.doi.org/10.1021/acs.jced.7b00459
Adiabatic compressibility along the two-phase saturation line for the molten (Li + CsCl) system:	https://www.doi.org/10.1016/j.jct.2019.07.003
Sound Velocity and Adiabatic Compressibility of Molten MCl + NdCl3 Mixtures (M = Li, Na, K, and Cs):	https://www.doi.org/10.1021/je100554g
Electrical Conductivity of Electrolytes Found In Natural Waters from (5 to 90) deg C	https://www.doi.org/10.1021/je101012n
Solution behavior of {(formamide/N-methylformamide/N,N-dimethylformamide) + CsCl + H2O} at multiple temperatures:	https://www.doi.org/10.1016/j.jct.2014.05.013
Synthesis, characterization and thermodynamic properties of Ln(HCO2)3·4H2O:	https://www.doi.org/10.1016/j.tca.2008.11.003
Enthalpies of formation and lattice enthalpies of alkaline metal acetates:	https://www.doi.org/10.1016/j.tca.2004.11.004
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
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 + cesium chloride at temperatures (278.15 to 393.15) K	https://www.doi.org/10.1016/j.jct.2005.05.005
Solid/Liquid Equilibrium (SLE) of the N,N-Dimethylacetamide (DMA) + MCl (M = Li, Na, K, Rb, Cs) + H2O Ternary Solutions at 298.15 K	https://www.doi.org/10.1021/je400959n
Solubility of Sodium Oxalate in Aqueous Alkali Metal Chloride Concentrated Electrolyte Solutions:	https://www.doi.org/10.1021/acs.jced.7b00690
The Yaws Handbook of Vapor Pressure	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Solubilities, densities and refractive indices for the ternary systems ethyleneglycol + MCl + H2O (M = Na, K, Rb, Cs) 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.2010.01.017
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
Thermodynamics and Phase Equilibrium of the System CsCl MgCl2 H2O at 298.15 K:	https://www.doi.org/10.1021/acs.jced.6b00952

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

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