

sodium chloride

Other names:	Salt
Inchi:	InChI=1S/ClH.Na/h1H;/q;+1/p-1
InchiKey:	FAPWRFPIFSIZLT-UHFFFAOYSA-M
Formula:	ClNa
SMILES:	[Cl-].[Na+]
Mol. weight [g/mol]:	58.44
CAS:	7647-14-5

Physical Properties

Property code	Value	Unit	Source
ea	0.73 ± 0.01	eV	NIST Webbook
ea	0.77	eV	NIST Webbook
ea	1.28	eV	NIST Webbook
ie	9.20	eV	NIST Webbook
ie	10.00	eV	NIST Webbook
ie	8.90 ± 0.10	eV	NIST Webbook
ie	8.92 ± 0.06	eV	NIST Webbook
ie	9.80 ± 0.04	eV	NIST Webbook
ie	9.00	eV	NIST Webbook
tf	1074.00	K	Ultrasonic velocity for an equimolar mixture of molten AgI and NaCl in the biphasic region
tf	1074.00	K	Densities of a dissolving mixture of molten (AgI + NaCl)
tt	1074.00	K	Phase-boundary potential in the two-liquid-phase (AgI + NaCl) system

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
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rhos	1931.20	kg/m3	1013.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	1905.80	kg/m3	1023.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	1890.40	kg/m3	1033.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	1888.30	kg/m3	1043.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	1882.00	kg/m3	1053.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	1884.90	kg/m3	1063.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
rhos	1889.80	kg/m3	1073.00	Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.63209e+01
Coeff. B	-1.94159e+04
Coeff. C	-7.90800e+01
Temperature range (K), min.	1073.90
Temperature range (K), max.	1738.20

Salt Effects on Liquid-Liquid Equilibria of Water + Phenol + (Propan-2-yl) Mean Activity Coefficients and Osmotic Coefficients in Dilute Aqueous Sodium Separation and the Separations at different temperatures in organic and aqueous media: anticonvulsant drug sodium valproate in aqueous and organic media: CO₂ in water and NaCl(aq) at conditions of interest to geophysical sequestration: Aqueous Salt Solutions from (280 to 300) K: Densities of a dissolving mixture of molten (AgI + NaCl): Solubility of NaBr, NaCl, and KBr in Surfactant Aqueous Solutions: Thermodynamics of complexation of aqueous 18-crown-6 with sodium ion: Aggregation of sodium salt of apparent inorganic capillary and porous media: Interfacial energy differences between hydrophobic and hydrophilic surfaces at different temperatures: Diffusion and sorption in the ternary system (NaCl + Glycolyze) in Aqueous Sodium Salt and Water: Molar Volume of fluoride ion in aqueous solution: Measuring and modeling the activity coefficient of NaCl-NH₄Cl-Monoethylene Glybalternate solution and (280 to 300) K: properties of

Investigation of Surface Properties for Electrolyte Solutions: Measurement of the dielectric permittivity of aqueous solutions: Aqueous concentration of sodium sulfate in water (100 mmol sulfate + water) and formamide (200 mmol sulfate in formamide) at 293.15 to 318.15 K: Knudsen thermogravimetry approach to the thermodynamics of aqueous viscosity and density of Ternary Solution of Calcium Chloride + Sodium Chloride and CO₂ in Na(20) in 5 to Aqueous Systems Containing the Ionic Mean Activity Coefficient (280 to 343.15) Surface Tension for Single Aqueous Densities of the NaNO₃ + NaCl + H₂O and NaNO₃ + KCl + H₂O Systems and Their Critical Phase Equilibria: Model: Aqueous Systems (CaCl₂ + SrCl₂ + Azobenzene) and (CaCl₂ + H₂O) and the effect of dilution and dissociation on the density of sodium chloride salt Micellization and Interfacial Behavior of Surfactant Pentanols: Densities and Solidities of Aqueous and Electrolyte Solutions: Partial molar volume and transport properties of benzene and sodium chloride in aqueous sodium chloride solution: Aqueous solutions of calcium chloride in water: Measurement and correlation of the density of thiourea in Triglycol + Water at different temperatures: System NaCl MgCl₂ NH₄Cl in Water at 0 and 25 °C: Equilibrium and thermodynamic behavior of etilefrine hydrochloride in effect of temperature on the partial molar volumes, partial molar Mean Activity Coefficients of NaCl in the binary SrCl₂ + H₂O ternary system at 0, 10, 20, 30, 40, and 50 °C: Sodium Concentrated Electrolyte Solutions: Temperature Dependence of the Density of Aqueous Alkali Halide Salt Experiments, Determination and Thermodynamic Modeling of Surface Liquid Equilibria and Chain Length on the Binodal Curve of an Aqueous Solution of a polymeric condensed branched polymeric emulsion of poly(2-vinylpyridine)-P(H₂O)-P(Na, K, Rb, Cs) and Cocaine Hydrochloride in Aqueous and in Aqueous NaCl Solutions at Different Temperatures:

<https://www.doi.org/10.1021/acs.jced.8b01202>
<https://www.doi.org/10.1021/acs.jced.5b00544>
<https://www.doi.org/10.1016/j.jct.2018.04.003>
<https://www.doi.org/10.1016/j.jct.2015.06.025>
<https://www.doi.org/10.1016/j.fluid.2006.06.006>
<https://www.doi.org/10.1021/je049707h>
<https://www.doi.org/10.1016/j.jct.2013.03.027>
<https://www.doi.org/10.1021/je100905g>
<https://www.doi.org/10.1016/j.jct.2005.01.011>
<https://www.doi.org/10.1016/j.jct.2018.02.019>
<https://www.doi.org/10.1021/acs.jced.6b00458>
<https://www.doi.org/10.1016/j.jct.2018.06.026>
<https://www.doi.org/10.1021/je9004504>
<https://www.doi.org/10.1016/j.fluid.2015.11.018>
<https://www.doi.org/10.1021/acs.jced.5b00053>
<https://www.doi.org/10.1016/j.jct.2010.04.004>
<https://www.doi.org/10.1021/acs.jced.7b00503>
<https://www.doi.org/10.1016/j.jct.2014.07.007>
<https://www.doi.org/10.1021/je1007394>
<http://www.ddbst.com/en/EED/VLE/VLE%20Water%3BSodium%20chloride.php>
<https://www.doi.org/10.1016/j.jct.2013.02.015>
<https://www.doi.org/10.1021/je500070k>
<https://www.doi.org/10.1021/je1010592>
<https://www.doi.org/10.1007/s10765-010-0725-9>
<https://www.doi.org/10.1021/je800638f>
<https://www.doi.org/10.1021/acs.jced.9b00154>
<https://www.doi.org/10.1016/j.jct.2015.07.029>
<https://www.doi.org/10.1021/je501058a>
<https://www.doi.org/10.1021/je900260g>
<https://www.doi.org/10.1016/j.jct.2005.04.012>
<https://www.doi.org/10.1021/je2010165>
<https://www.doi.org/10.1016/j.fluid.2004.07.019>
<https://www.doi.org/10.1021/je900040n>
<https://www.doi.org/10.1021/acs.jced.5b00639>
<https://www.doi.org/10.1016/j.jct.2014.07.017>
<https://www.doi.org/10.1016/j.jct.2017.07.037>
<https://www.doi.org/10.1021/acs.jced.9b00509>
<https://www.doi.org/10.1021/acs.jced.7b00690>
<https://www.doi.org/10.1021/je500420g>
<https://www.doi.org/10.1021/acs.jced.8b00510>
<https://www.doi.org/10.1021/acs.jced.8b00188>
<https://www.doi.org/10.1016/j.jct.2010.01.017>
<https://www.doi.org/10.1021/acs.jced.7b01059>

NIST Webbook:

Solid-liquid equilibrium of NaCl + HOCH₂COONa + H₂O system from Equilibrium Diagrams of Water + NaCl or KCl + 2-Methyl 2-Propanol at the Boiling Pressure Measurements of Liquid Solutions at Different Temperatures: Comparison of the ρ - T relation in the NaCl-KCl system and some NaCl-KCl systems; Partial Molar Compressibilities, and Viscosities of Aqueous Solutions and Water and in Organic Solvents; Solubility of Sodium Chloride in Organic Solvents and in Aqueous Solutions: Characterization and Thermodynamic Properties of NaCl in H₂O, Organic and Aqueous B-Coefficients for the Ternary Systems NaCl-H₂O-Glycerol, NaCl-H₂O-Glycerol and NaCl-H₂O-Glycerol-Na₂SO₄; Diffusion Coefficients in the Ternary System NaCl-H₂O-Glycerol at 20, 25, 30, 35, 40, 45, and 50 °C; Diffusion Coefficients in the Ternary System NaCl-H₂O-Glycerol and in Water + Salt (NaCl, KCl, NaBr, Na₂SO₄) and in Organic Solvents; Gibbs Energy Density Coefficients in Infinite Dilution Solutions of NaCl and NaBr in Water: Effect of Addition of NaCl and Salt Concentration: Water, Methanol, Ethanol and Their Mixed Solvents; Chemical Thermodynamics of d,l-Alanine and Its Ternary Equilibria in the Diesel Fuel systems. Part I. Vapour Pressure and Adiabatic Compressibility of Molten NaCl, NaCl₂ and NaCl₃ in Presence of Additives; Viscosity and Density of the System NaCl + LaCl₃ + H₂O and Its Binary Subsystems at Different Temperatures: Concentration and Temperature in Ethanol Solutions of d,l-Alanine, D-serine, DL-threonine, L-histidine, D-threonine and D-proline in Water; Pressures in Saturated Aqueous Solutions at Various Points of the Characterization of Organic NaClO₃ + H₂O and the Phase Behavior of NaCl₂ Solutions in Presence of CaCl₂ and CaCl₂·2H₂O at 273.15 K; I-Phenylalanine, I-Leucine, I-Glutamic Acid: Temperature Concentration Dependence of Apparent Molar Volumes and Apparent Molar Compressibilities of NaClO₃ + H₂O and CaCl₂ + H₂O in Ethanol-water mixtures; Diffusion Coefficients in Ethanol-water System; Diffusion Coefficients in the System of Sodium and Potassium Chloride in Ethanol-water mixtures; Solubility of Ethanol in Four Binary Systems at Various Temperatures; The Two Mixed Aqueous Solutions of Alanine and Ionic Lipids in Aqueous NaCl Solutions at 298.15 K; Capability of tetra alkyl ammonium bromides for aqueous biphasic systems: Apparent Molar Volume, Adiabatic Compressibility, and Critical Mixtures: Characterization of Ethanol in Sodium Ions in Alloxane NaCl aqueous systems at different temperatures: confinement effects on the phase transition temperature of aqueous NaCl Solutions; The Density and Refractive Indices for the Ternary Systems Solubility of NaCl-H₂O (M= Na, K, Rb, Cs) at (298.15 to 308.15) K; Solid-Liquid Equilibrium for the Ternary Systems (Na₂SO₄ + NaH₂PO₄ + H₂O) Binary and Spectroscopic Properties of Ternary Systems Water + Ethanol + Chloride or Bromide or Iodide; Mainly on the basis of 303 cm⁻¹ OH stretching frequency determined by potentiometry;

- <http://webbook.nist.gov/cgi/cbook.cgi?ID=C7647145&Units=SI>
- <https://www.doi.org/10.1016/j.fluid.2015.10.021>
- <https://www.doi.org/10.1021/acs.jced.8b00550>
- <https://www.doi.org/10.1021/je034197x>
- <https://www.doi.org/10.1016/j.jct.2013.03.015>
- <https://www.doi.org/10.1021/acs.jced.8b00236>
- <https://www.doi.org/10.1016/j.jct.2019.105878>
- <https://www.doi.org/10.1016/j.jct.2018.03.027>
- <https://www.doi.org/10.1016/j.tca.2008.11.003>
- <https://www.doi.org/10.1021/acs.jced.5b00941>
- <https://www.doi.org/10.1021/acs.jced.7b00880>
- <https://www.doi.org/10.1021/je500768w>
- <https://www.doi.org/10.1016/j.fluid.2012.06.024>
- <https://www.doi.org/10.1021/acs.jced.7b00413>
- <https://www.doi.org/10.1021/je2013878>
- <https://www.doi.org/10.1021/je049922y>
- <https://www.doi.org/10.1021/acs.jced.5b00351>
- <https://www.doi.org/10.1016/j.jct.2012.09.032>
- <https://www.doi.org/10.1021/je100554g>
- <https://www.doi.org/10.1021/je900749a>
- <https://www.doi.org/10.1021/je8004062>
- <https://www.doi.org/10.1021/acs.jced.5b00018>
- <https://www.doi.org/10.1016/j.jct.2005.03.015>
- <https://www.doi.org/10.1021/je1009653>
- <https://www.doi.org/10.1016/j.jct.2012.05.033>
- <https://www.doi.org/10.1021/acs.jced.9b00422>
- <https://www.doi.org/10.1021/je900909s>
- <https://www.doi.org/10.1021/je0340957>
- <https://www.doi.org/10.1016/j.fluid.2019.05.023>
- <https://www.doi.org/10.1021/acs.jced.6b00048>
- <https://www.doi.org/10.1021/acs.jced.6b00842>
- <https://www.doi.org/10.1021/je300647k>
- <https://www.doi.org/10.1016/j.tca.2013.04.009>
- <https://www.doi.org/10.1016/j.jct.2011.03.002>
- <https://www.doi.org/10.1016/j.fluid.2018.03.002>
- <https://www.doi.org/10.1021/acs.jced.5b00317>
- <https://www.doi.org/10.1021/je7007022>
- <https://www.doi.org/10.1016/j.tca.2015.07.013>
- <https://www.doi.org/10.1021/je200443t>
- <https://www.doi.org/10.1016/j.jct.2013.07.024>
- <https://www.doi.org/10.1021/je500854m>
- <https://www.doi.org/10.1021/je200963q>
- <https://www.doi.org/10.1016/j.fluid.2015.12.012>

Solubilities of Sodium Chloride and Potassium Chloride in Water + Ethanol
Effect of Dissolved Gases on the Enthalpy of Mixing of the Methanol + Ethanol + Water System
2-naphthalenesulfonate in binary solutions of dilution for myo-inositol in water and methanol (water) solvent mixtures at temperatures from 15 to 70 K. and methanol by experiment and molecular simulation: Refractive Indices of Potassium Chloride and Solubility of Neoguberite ($\text{MgCa}_2\text{H}_2\text{O}$) and $\text{Ca}_2\text{K}_2\text{MgCl}_2$ and $\text{Ca}_2\text{K}_2\text{MgCl}_2$ on the Solubility of Carbon Dioxide in Systems Containing Ethanol
Effect of Dissolved Water on the Solubility of Ca_2MgCl_2 in the Methanol + Water System
electrolyte/amino-acid solutions with SO_4^{2-} and equilibrium of quaternary system $\text{Na}^+/\text{H}_2\text{PO}_4^- \text{Cl}^- [\text{SO}_4]^{2-} + \text{H}_2\text{O}$
Solubility of Sodium Salts in Ammonium-Based Deep Eutectic Solvents
thermodynamic properties of betaine hydrochloride drug in aqueous NaCl
Measurements of $\text{Ca}_2\text{H}_2\text{O}$, NaCl
Solution Densities over a Wide Range of Temperatures and Pressures
Solubility of $\text{Na}^+/\text{Cl}^-/\text{H}_2\text{O}$ quaternary system at measurement and modelling of interfacial tension in methane/water
Temperature and solvent effects on the solubility of anthracene in water
chemistry of $\text{NaRb}[\text{B}_4\text{O}_5(\text{OH})_4] \cdot 4\text{H}_2\text{O}$: Measurement and Calculation of Solubilities in the Ternary System
Measurement and Correlation of the Solubilities of Sulfur S_8 in 10 Solvents: Salt-effects in aqueous surface-active ionic liquid
Density of Crystalline Alkali Chlorides and Their Eutectic Mixtures Near the Melting Point
Phase Equilibrium of $\text{Na}^+/\text{Cl}^-/\text{H}_2\text{O}$ and Changes of Potential Energy and Configuration of the System Separation with the Aid of Solubility
of ternary systems with an excess molar volume of 1
Butane, Methanol, and Electrolyte
Solubility of $\text{Na}_2\text{SiO}_3 \cdot 9\text{H}_2\text{O}$ in the NaCl-KOH System
Solubility of $\text{N}-(\text{N-Glycylglycyl})\text{glycine}$ in Aqueous Solution
Equilibrium of Potassium thermodynamic properties of K:
Aqueous solution of $\text{K}^+/\text{Cl}^-/\text{H}_2\text{O}$ (water + $\text{K}^+/\text{Cl}^-/\text{H}_2\text{O}$)
Coefficients for Two and Three Basic Anions in Ternary Solutions: thermodynamics of myo-inositol in water
Densities of Aqueous $\text{MgCl}_2(\text{aq})$, $\text{CaCl}_2(\text{aq})$, $\text{KI}(\text{aq})$, $\text{NaCl}(\text{aq})$, $\text{KCl}(\text{aq})$, $\text{RbCl}(\text{aq})$, and $\text{CsCl}(\text{aq})$ at 298.15 K
Capillary Temperature Solubility and Thermodynamic Properties of Aqueous Sulfate, Nitrate, and Chloride
Molar Volume of Aqueous Sulfate, Nitrate, and Chloride
Solubility and Thermodynamic Properties of Ca_2MgCl_2 and $\text{Ca}_2\text{K}_2\text{MgCl}_2$ in Aqueous Solution
Presence of Ca^{2+} and Mg^{2+} in the Salt Solution
Solubility of Ca_2MgCl_2 and $\text{Ca}_2\text{K}_2\text{MgCl}_2$ in Aqueous Solution by Experiment and Molecular Simulation
Structure and thermochemical properties of a novel coordination compound
Solubility of Ca_2MgCl_2 in aqueous solutions of NaCl: Measurements and interaction with biological buffers with electrolytes: Densities of aqueous solutions of NaCl , KCl , MgCl_2 , $\text{Na}_2\text{B}_4\text{O}_7$, and BaCl_2 in water
Solubility of Ca_2MgCl_2 in the quaternary system $\text{Na}^+/\text{NH}_4^+/\text{Cl}^-/\text{H}_2\text{PO}_4^- + \text{H}_2\text{O}$
Solubility of Carbon Dioxide, Methane, and Ethane in Sodium Chloride Solutions
Solubility of Sodium 2-naphthalenesulfonate in Binary NaCl + Water
Solubility of Ca_2MgCl_2 in water and 5 to 20% saline from (278.15 to 313.15) K:

<https://www.doi.org/10.1021/je049782s>
<https://www.doi.org/10.1021/je800568m>
<https://www.doi.org/10.1016/j.jct.2014.11.011>
<https://www.doi.org/10.1021/je060492g>
<https://www.doi.org/10.1016/j.fluid.2017.10.034>
<https://www.doi.org/10.1021/je020173z>
<https://www.doi.org/10.1021/je800438p>
<https://www.doi.org/10.1021/acs.jced.6b00381>
<https://www.doi.org/10.1021/je1002048>
<https://www.doi.org/10.1016/j.jct.2013.08.018>
<https://www.doi.org/10.1016/j.fluid.2015.02.023>
<https://www.doi.org/10.1021/je400045d>
<https://www.doi.org/10.1016/j.tca.2014.10.019>
<https://www.doi.org/10.1021/je400459y>
<https://www.doi.org/10.1016/j.fluid.2017.04.011>
<https://www.doi.org/10.1016/j.fluid.2015.09.050>
<https://www.doi.org/10.1016/j.jct.2010.06.006>
<https://www.doi.org/10.1016/j.tca.2006.05.001>
<https://www.doi.org/10.1021/je7001495>
<https://www.doi.org/10.1021/acs.jced.7b00699>
<https://www.doi.org/10.1016/j.jct.2014.03.001>
<https://www.doi.org/10.1021/je901030f>
<https://www.doi.org/10.1021/acs.jced.9b00367>
<https://www.doi.org/10.1016/j.jct.2018.04.017>
<https://www.doi.org/10.1021/acs.jced.5b00366>
<https://www.doi.org/10.1021/je401009p>
<https://www.doi.org/10.1021/je900849b>
<https://www.doi.org/10.1016/j.tca.2014.11.008>
<https://www.doi.org/10.1021/je300701m>
<https://www.doi.org/10.1016/j.fluid.2013.11.045>
<https://www.doi.org/10.1021/je2013704>
<https://www.doi.org/10.1016/j.jct.2018.01.021>
<https://www.doi.org/10.1021/acs.jced.9b00354>
<https://www.doi.org/10.1016/j.fluid.2011.09.027>
<https://www.doi.org/10.1021/je5009944>
<https://www.doi.org/10.1016/j.jct.2014.03.009>
<https://www.doi.org/10.1016/j.fluid.2014.12.043>
<https://www.doi.org/10.1016/j.jct.2008.12.011>
<https://www.doi.org/10.1021/je9006184>
<https://www.doi.org/10.1016/j.fluid.2015.06.038>
<https://www.doi.org/10.1021/je800074z>
<https://www.doi.org/10.1021/je500517d>
<https://www.doi.org/10.1016/j.jct.2013.06.009>

