Sodium nitrate

Other names:	nitric acid sodium salt
Inchi:	InChI=1S/NO3.Na/c2-1(3)4;/q-1;+1
InchiKey:	VWDWKYIASSYTQR-UHFFFAOYSA-N
Formula:	NNaO3
SMILES:	O=[N+]([O-])O[Na]
Mol. weight [g/mol]:	84.99

Physical Properties

Property code	Value	Unit	Source
hfus	16.06	kJ/mol	Study on preparation and thermal properties of sodium nitrate/silica composite as shape-stabilized phase change material
tf	579.05	K	Crystallization of ionic salts for calibration of differential scanning calorimeters

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
dvisc	0.0014300	Pa×s	752.10	Viscosity of Molten Sodium Nitrate
dvisc	0.0027400	Pa×s	599.30	Viscosity of Molten Sodium Nitrate
dvisc	0.0026580	Pa×s	600.00	Viscosity of Molten Sodium Nitrate
dvisc	0.0026380	Pa×s	600.30	Viscosity of Molten Sodium Nitrate
dvisc	0.0024370	Pa×s	613.20	Viscosity of Molten Sodium Nitrate
dvisc	0.0021550	Pa×s	640.90	Viscosity of Molten Sodium Nitrate

dvisc	0.0020500	Pa×s	653.60	Viscosity of Molten Sodium Nitrate	
dvisc	0.0018110	Pa×s	673.20	Viscosity of Molten Sodium Nitrate	
dvisc	0.0017680	Pa×s	676.80	Viscosity of Molten Sodium Nitrate	
dvisc	0.0017190	Pa×s	691.90	Viscosity of Molten Sodium Nitrate	
dvisc	0.0016270	Pa×s	709.70	Viscosity of Molten Sodium Nitrate	
dvisc	0.0015370	Pa×s	714.60	Viscosity of Molten Sodium Nitrate	
dvisc	0.0015640	Pa×s	732.40	Viscosity of Molten Sodium Nitrate	
dvisc	0.0028540	Pa×s	590.30	Viscosity of Molten Sodium Nitrate	
econd	125.10	S/m	643.00	Electrical Conductivity of LiCl-KCl-CsCl Melts	
econd	120.90	S/m	633.00	Electrical Conductivity of LiCl-KCl-CsCl Melts	
econd	116.50	S/m	623.00	Electrical Conductivity of LiCl-KCl-CsCl Melts	
econd	112.00	S/m	613.00	Electrical Conductivity of LiCl-KCl-CsCl Melts	
econd	107.60	S/m	603.00	Electrical Conductivity of LiCl-KCl-CsCl Melts	
econd	103.20	S/m	593.00	Electrical Conductivity of LiCl-KCl-CsCl Melts	
econd	98.70	S/m	583.00	Electrical Conductivity of LiCl-KCl-CsCl Melts	

Sources

The influence of cation, anion and temperature on the liquid-liquid equilibrium of some pentanols-water system:	https://www.doi.org/10.1016/j.fluid.2011.03.018
Electrolytic Effect on the Solubility and Solvation Thermodynamics of l-Serine and l-Isoleucine in Aqueous Media:	https://www.doi.org/10.1021/acs.jced.9b00363
Intermolecular/interionic interactions in l-leucine-, l-asparagine-, and glycylglycine-aqueous electrolyte systems:	https://www.doi.org/10.1016/j.tca.2006.04.004
Densities, Viscosities, and Adiabatic Compressibilities of Some Mineral Salts in Water at Different Temperatures:	https://www.doi.org/10.1021/je030205y
Activity of Water and Osmotic Coefficients for Two- and Three-Basic Amino Acid Ternary Solutions:	https://www.doi.org/10.1021/je300701m
Solubility of some phenolic compounds in aqueous alkali metal nitrate solutions from (293.15 to 318.15) K:	https://www.doi.org/10.1016/j.jct.2008.06.006
Solubility of n-Hexane and Setchenow's Constants in Aqueous Solutions of KCl, NaCl, NaBr, and NaNO3:	https://www.doi.org/10.1021/acs.jced.9b00384
Thermodynamic Study of the NaNO3 Cd(NO3)2 H2O Ternary System at 298.15 K by the Potential Difference Method:	https://www.doi.org/10.1021/acs.jced.6b00790
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
Study on preparation and thermal properties of sodium nitrate/silica composite as shape-stabilized phase change material:	https://www.doi.org/10.1016/j.tca.2015.05.023
Solubility of Hexafluorobenzene in Aqueous Salt Solutions from (280 to 340) K:	https://www.doi.org/10.1021/je049707h
Ultrasonic Velocities and Densities of l-Phenylalanine, l-Leucine, l-Glutamic Acid, and l-Proline + 2 mol*L-1 Aqueous NaCl and 2 mol*L-1 Aqueous NaNO3 Solutions from (298.15 to 323.15) K:	https://www.doi.org/10.1021/je900909s
Viscosities of l-Phenylalanine, l-Leucine, l-Glutamic Acid, or l-Proline + 2 mol*L-1 Aqueous NaCl or 2.0 mol*L-1 Aqueous NaNO3 Solutions at T = (298.15 to 328.15) K:	https://www.doi.org/10.1021/je1000878
Stable Solid-Liquid Equilibrium of the Quaternary System Na+//Cl-, NO3-, and SO42--H2O at 288.15 K:	https://www.doi.org/10.1021/acs.jced.9b00349
Experimental determination and prediction of the vapor pressure of some binary and quaternary aqueous solutions of alkaline nitrites and nitrates:	https://www.doi.org/10.1016/j.fluid.2009.12.028
The capability of tetra alkyl ammonium bromides for aqueous biphasic systems formation with both polymers and electrolytes in aqueous solutions:	https://www.doi.org/10.1016/j.fluid.2018.03.002
Solid-Liquid Equilibria for (NaNO3 + NaCl + H2O) and (NaNO3 + Na2CO3 + H2O) Systems at 313.15 K:	https://www.doi.org/10.1021/acs.jced.8b00415
Solid-liquid equilibrium of Na+//Cl-, NO3-, SO42- -H2O quaternary system at 373.15 K:	https://www.doi.org/10.1016/j.fluid.2017.04.011
Activity of Water in Aqueous Solutions of Sodium Citrate and in Aqueous Solutions of (An Inorganic Salt and Citric Acid) at 298.15 K:	https://www.doi.org/10.1021/je034258r
Enthalpies of Transfer of Amino Acids from Water to Aqueous Solutions of Alkali Metal Nitrates:	https://www.doi.org/10.1021/je050296u
Investigation of Solid-Liquid Equilibria on the Na+//Cl-, NO3-, SO42--H2O System and the Na+//NO3-, SO42--H2O System at 373.15 K:	https://www.doi.org/10.1021/acs.jced.8b01110
Temperature Dependence of Vapor Pressures over Saturated Aqueous Solutions at Invariant Points of the NaCl + KCl + H2O, NaCl + NaNO3 + H2O, KCl + KBr + H2O, KCl + KI + H2O, KCl + KNO3 + H2O, and KCl + K2SO4 + H2O Systems:	https://www.doi.org/10.1021/je800963g
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=B6009950&Units=SI
Stable Phase Equilibria of the Quaternary System Na+//Cl-, NO3-, SO42--H2O at 383.15 K:	https://www.doi.org/10.1021/acs.jced.8b00198
Enthalpies of transfer of amino acids from water to aqueous solutions of sodium nitrate and sodium perchlorate at T = 298.15K:	https://www.doi.org/10.1016/j.tca.2005.10.013
Salt effects in aqueous surface-active ionic liquid 1-dodecyl-3-methylimidazolium bromide solutions: Volumetric and compressibility property changes and critical aggregation concentration shifts:	https://www.doi.org/10.1016/j.jct.2014.03.001
Crystallization of ionic salts for calibration of differential scanning calorimeters:	https://www.doi.org/10.1016/j.tca.2016.08.003
Electrical Conductivity of LiCl-KCl-CsCl Melts:	https://www.doi.org/10.1021/acs.jced.5b00682
Vapor liquid equilibrium in systems (water + organic solvent + salt) at low water concentrations but high ratios of salt to water: experimental results and modelling:	https://www.doi.org/10.1016/j.fluid.2004.07.017
Solubility of alpha glycine in water with additives at a temperature range of (293.15–343.15) K: Experimental data and results of thermodynamic modeling:	https://www.doi.org/10.1016/j.fluid.2016.12.003
Densities of the NaNO3 + NaCl + H2O and NaNO3 + KCl + H2O Systems and Their Correlation with the Pitzer Model:	https://www.doi.org/10.1021/je800638f
Solid-Liquid Equilibrium of Azacyclotridecan-2-one in 15 Pure Solvents from T = 273.15 to 323.15 K:	https://www.doi.org/10.1021/acs.jced.8b01193
Viscosity of Molten Sodium Nitrate: Experimental Determination and Thermodynamic Modeling:	https://www.doi.org/10.1007/s10765-006-0119-1
Phase Equilibria of the Na+, NH4+//SO42-, NO3--H2O Quaternary System at 303.15 and 323.15 K:	https://www.doi.org/10.1021/acs.jced.7b01015
Measuring and modeling aqueous electrolyte/amino-acid solutions with ePC-SAFT:	https://www.doi.org/10.1016/j.jct.2013.08.018
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
Experimental and theoretical study on liquid-liquid equilibrium of 1-butanol + water + NaNO3 at 25 and 35 deg C:	https://www.doi.org/10.1016/j.fluid.2010.09.013
Experimental measurement and thermodynamic modeling of liquid-liquid equilibrium for 1-pentanol + water + NaNO3 at 298.15 and 308.15 K:	https://www.doi.org/10.1016/j.fluid.2011.05.003

Legend

dvisc:	Dynamic viscosity
econd:	Electrical conductivity
hfus:	Enthalpy of fusion at standard conditions
tf:	Normal melting (fusion) point