

ENTHALPY OF SOLUTION OF ELECTROLYTES

This table gives the molar enthalpy (heat) of solution at infinite dilution for some common uni-univalent electrolytes. This is the enthalpy change when 1 mol of solute in its standard state is dissolved in an infinite amount of water. Values are given in kilojoules per mole at 25°C.

Reference

Parker, V. B., *Thermal Properties of Uni-Univalent Electrolytes*, Natl. Stand. Ref. Data Series — Natl. Bur. Stand.(U.S.), No.2, 1965.

Solute	State	$\Delta_{\text{sol}} H^\circ$ kJ/mol	Solute	State	$\Delta_{\text{sol}} H^\circ$ kJ/mol	Solute	State	$\Delta_{\text{sol}} H^\circ$ kJ/mol
HF	g	-61.50	LiBr · 2H ₂ O	c	-9.41	KClO ₃	c	41.38
HCl	g	-74.84	LiBrO ₃	c	1.42	KClO ₄	c	51.04
HClO ₄	l	-88.76	LiI	c	-63.30	KBr	c	19.87
HClO ₄ · H ₂ O	c	-32.95	LiI · H ₂ O	c	-29.66	KBrO ₃	c	41.13
HBr	g	-85.14	LiI · 2H ₂ O	c	-14.77	KI	c	20.33
HI	g	-81.67	LiI · 3H ₂ O	c	0.59	KIO ₃	c	27.74
HIO ₃	c	8.79	LiNO ₂	c	-11.00	KNO ₂	c	13.35
HNO ₃	l	-33.28	LiNO ₂ · H ₂ O	c	7.03	KNO ₃	c	34.89
HCOOH	l	-0.86	LiNO ₃	c	-2.51	KC ₂ H ₃ O ₂	c	-15.33
CH ₃ COOH	l	-1.51				KCN	c	11.72
			NaOH	c	-44.51	KCNO	c	20.25
NH ₃	g	-30.50	NaOH · H ₂ O	c	-21.41	KCNS	c	24.23
NH ₄ Cl	c	14.78	NaF	c	0.91	KMnO ₄	c	43.56
NH ₄ ClO ₄	c	33.47	NaCl	c	3.88			
NH ₄ Br	c	16.78	NaClO ₂	c	0.33	RbOH	c	-62.34
NH ₄ I	c	13.72	NaClO ₂ · 3H ₂ O	c	28.58	RbOH · H ₂ O	c	-17.99
NH ₄ IO ₃	c	31.80	NaClO ₃	c	21.79	RbOH · 2H ₂ O	c	0.88
NH ₄ NO ₂	c	19.25	NaClO ₄	c	13.38	RbF	c	-26.11
NH ₄ NO ₃	c	25.69	NaClO ₄ · H ₂ O	c	13.31	RbF · H ₂ O	c	-0.42
NH ₄ C ₂ H ₃ O ₂	c	-2.38	NaBr	c	-0.60	RbF · 1.5H ₂ O	c	1.34
NH ₄ CN	c	17.57	NaBr · 2H ₂ O	c	-8.64	RbCl	c	17.28
NH ₄ CNS	c	22.59	NaBrO ₃	c	2.90	RbClO ₃	c	47.74
CH ₃ NH ₃ Cl	c	5.77	NaI	c	-7.53	RbClO ₄	c	56.74
(CH ₃) ₃ NHCl	c	1.46	NaI · 2H ₂ O	c	16.13	RbBr	c	21.88
N(CH ₃) ₃ Cl	c	4.08	NaNO ₂	c	20.29	RbBrO ₃	c	48.95
N(CH ₃) ₃ Br	c	24.27	NaNO ₃	c	13.89	RbI	c	25.10
N(CH ₃) ₄ I	c	42.07	NaNO ₃	c	20.50	RbNO ₃	c	36.48
			NaC ₂ H ₃ O ₂	c	-17.32			
AgClO ₄	c	7.36	NaC ₂ H ₃ O ₂ · 3H ₂ O	c	19.66	CsOH	c	-71.55
AgNO ₂	c	36.94	NaCN	c	1.21	CsOH · H ₂ O	c	-20.50
AgNO ₃	c	22.59	NaCN · 0.5H ₂ O	c	3.31	CsF	c	-36.86
			NaCN · 2H ₂ O	c	18.58	CsF · H ₂ O	c	-10.46
LiOH	c	-23.56	NaCNO	c	19.20	CsF · 1.5H ₂ O	c	-5.44
LiOH · H ₂ O	c	-6.69	NaCNS	c	6.83	CsCl	c	17.78
LiF	c	4.73				CsClO ₄	c	55.44
LiCl	c	-37.03	KOH	c	-57.61	CsBr	c	25.98
LiCl · H ₂ O	c	-19.08	KOH · H ₂ O	c	-14.64	CsBrO ₃	c	50.46
LiClO ₄	c	-26.55	KOH · 1.5H ₂ O	c	-10.46	CsI	c	33.35
LiClO ₄ · 3H ₂ O	c	32.61	KF	c	-17.73	CsNO ₃	c	40.00
LiBr	c	-48.83	KF · 2H ₂ O	c	6.97			
LiBr · H ₂ O	c	-23.26	KCl	c	17.22			