

Tin(II)

Reaction	Baes and Mesmer, 1976	Feitknecht, 1963	Hummel et al., 2002	NIST46	Gamsjäger et al, 2012	Cigala et al., 2012	Brown and Ekberg, 2016
$\text{Sn}^{2+} + \text{H}_2\text{O} = \text{SnOH}^+ + \text{H}^+$	-3.40		-3.8 ± 0.2	-3.4	-3.53 ± 0.40	-3.52 ± 0.05	-3.53 ± 0.40
$\text{Sn}^{2+} + 2 \text{H}_2\text{O} = \text{Sn(OH)}_2 + 2 \text{H}^+$	-7.06		-7.7 ± 0.2	-7.1	-7.68 ± 0.40	-6.26 ± 0.06	-7.68 ± 0.40
$\text{Sn}^{2+} + 3 \text{H}_2\text{O} = \text{Sn(OH)}_3^- + 3 \text{H}^+$	-16.61		-17.5 ± 0.2	-16.6	-17.00 ± 0.60	-16.97 ± 0.17	-17.56 ± 0.40
$2 \text{Sn}^{2+} + 2 \text{H}_2\text{O} = \text{Sn}_2(\text{OH})_2^{2+} + 2 \text{H}^+$	-4.77			-4.8		-4.79 ± 0.05	
$3 \text{Sn}^{2+} + 4 \text{H}_2\text{O} = \text{Sn}_3(\text{OH})_4^{2+} + 4 \text{H}^+$	-6.88		-5.6 ± 1.6	-6.88	-5.60 ± 0.47	-5.88 ± 0.05	-5.60 ± 0.47
$\text{Sn(OH)}_2(\text{s}) = \text{Sn}^{2+} + 2 \text{OH}^-$				-25.8		-26.28 ± 0.08	
$\text{SnO}(\text{s}) + 2 \text{H}^+ = \text{Sn}^{2+} + \text{H}_2\text{O}$	1.76		2.5 ± 0.5				1.60 ± 0.15

$\text{SnO(s)} + \text{H}_2\text{O} = \text{Sn}^{2+} + 2 \text{OH}^-$		-26.2					
$\text{SnO(s)} + \text{H}_2\text{O} = \text{Sn(OH)}_2$		-5.3					
$\text{SnO(s)} + 2 \text{H}_2\text{O} = \text{Sn(OH)}_3^- + \text{H}^+$		-0.9					

C.F. Baes and R.E. Mesmer, *The Hydrolysis of Cations*. Wiley, New York, 1976.

P.L. Brown and C. Ekberg, *Hydrolysis of Metal Ions*. Wiley, 2016, pp. 836-842.

R.M. Cigala, F. Crea, C. De Stefano, G. Lando, D. Milea and S. Sammartano, The inorganic speciation of tin(II) in aqueous solution. *Geochim. Cosmochim. Acta*, 87, 1-20 (2012).

W. Feitknecht and P. Schindler, Solubility constants of metal oxides, metal hydroxides and metal hydroxide salts in aqueous solution. *Pure and Applied Chemistry*, 6, 126-199 (1963).

H. Gamsjäger, T. Gajda, J. Sangster, S. K. Saxena and W. Voigt, *Chemical Thermodynamics of Tin*. Chemical Thermodynamics Volume 12. OECD, Paris, 2012.

W. Hummel, U. Berner, E. Curti, F.J. Pearson and T. Thoenen, *Nagra / PSI Chemical Thermodynamic Data Base 01/01*, July 2002.

NIST46, NIST Critically Selected Stability Constants of Metal Complexes: Version 8.0. Available at: www.nist.gov/srd/nist46