
Equilibrium constants for hydrolysis and associated equilibria in critical compilations

Palladium

Equilibrium reactions	lgK at infinite dilution and $T = 298\text{ K}$			
	Perrin et al., 1969	Hummel et al., 2002	Kitamura and Yui, 2010	Brown and Ekberg, 2016
$\text{Pd}^{2+} + \text{H}_2\text{O} \rightleftharpoons \text{PdOH}^+ + \text{H}^+$	-0.96		-0.65 ± 0.64	-1.16 ± 0.30
$\text{Pd}^{2+} + 2\text{H}_2\text{O} \rightleftharpoons \text{Pd}(\text{OH})_2 + 2\text{H}^+$	-2.6	-4 ± 1	-3.11 ± 0.63	-3.07 ± 0.16
$\text{Pd}^{2+} + 3\text{H}_2\text{O} \rightleftharpoons \text{Pd}(\text{OH})_3^- + 3\text{H}^+$		-15.5 ± 1	-14.20 ± 0.63	
$\text{Pd}(\text{OH})_2(\text{am}) + 2\text{H}^+ \rightleftharpoons \text{Pd}^{2+} + 2\text{H}_2\text{O}$		-3.3 ± 1		-3.4 ± 0.2

P.L. Brown and C. Ekberg, Hydrolysis of Metal Ions. Wiley, 2016, pp. 723–725.

W. Hummel, U. Berner, E. Curti, F.J. Pearson, T. Thoenen, Technical report 02-16 Nagra / PSI Chemical Thermodynamic Data Base 01/01, 2002, pp. 244–245.

A. Kitamura, M. Yui, Reevaluation of thermodynamic data for hydroxide and hydrolysis species of palladium(II) using the Brønsted-Guggenheim Scatchard model. J. Nuclear Sci. Technol. 47, 760–770 (2010).

D.D. Perrin, International Union of Pure and Applied Chemistry. Commission on Electroanalytical Chemistry, Dissociation constants of inorganic acids and bases in aqueous solutions. Butterworths, 1969, pp. 186.

Distribution diagrams

These diagrams have been computed at two Pd concentrations ($1 \text{ mM} = 1 \times 10^{-3} \text{ mol L}^{-1}$ and $1 \text{ }\mu\text{M} = 1 \times 10^{-6} \text{ mol L}^{-1}$) with the 'best' equilibrium constants above (in green). Calculations assume $T = 298 \text{ K}$ for the limiting case of zero ionic strength (*i.e.*, even neglecting plotted ions).

