Neptunium(VI)

Equilibrium reactions	lg$K$ at infinite dilution and T = 298 K			
	Baes and Mesmer, 1976	NIST46	Brown and Ekberg, 2016	Grenthe et al, 2020
$NpO_2^{2+} + H_2O \rightleftharpoons NpO_2(OH)^+ + H^+$	−5.15	−5.12	−5.1 ± 0.2	−5.1 ± 0.4
$NpO_2^{2+} + 3\ H_2O \rightleftharpoons NpO_2(OH)_3^- + 3\ H^+$			−21 ± 1	
$NpO_2^{2+} + 4\ H_2O \rightleftharpoons NpO_2(OH)_4^{2-} + 4\ H^+$			−32 ± 1	
$2\ NpO_2^{2+} + 2\ H_2O \rightleftharpoons (NpO_2)_2(OH)_2^{2+} + 2\ H^+$	−6.39	−6.39	−6.2 ± 0.2	−6.2 ± 0.2
$3\ NpO_2^{2+} + 5\ H_2O \rightleftharpoons (NpO_2)_3(OH)_5^+ + 5\ H^+$	−17.49	−17.49	−17.0 ± 0.2	−17.1 ± 0.2
$NpO_2^{2+} + 2\ H_2O \rightleftharpoons NpO_3.H_2O(cr) + 2\ H^+$	≥-6.6		−5.4 ± 0.4	−5.4 ± 0.4

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Distribution diagrams

These diagrams have been computed at two Np(VI) concentrations (1 mM = 1x10^{-3} mol L^{-1} and 1 μM = 1x10^{-6} mol L^{-1}) with the 'best' equilibrium constants above (in green). Calculations assume T = 298 K for the limiting case of zero ionic strength (*i.e.*, even neglecting plotted ions).