Niobium

Equilibrium reactions	lg*K* at infinite dilution and *T* = 298 K	
	Baes and Mesmer, 1976	Filella and May, 2020[a]
$Nb(OH)_5 + H^+ \rightleftharpoons Nb(OH)_4^+ + H_2O$	~ –0.6	1.603
$Nb(OH)_5 + H_2O \rightleftharpoons Nb(OH)_6^- + H^+$	~ –4.8	–4.951
$Nb_6O_{19}^{8-} + H^+ \rightleftharpoons HNb_6O_{19}^{7-}$		14.95
$HNb_6O_{19}^{7-} + H^+ \rightleftharpoons H_2Nb_6O_{19}^{6-}$		13.23
$H_2Nb_6O_{19}^{6-} + H^+ \rightleftharpoons H_3Nb_6O_{19}^{5-}$		11.73
$1/2\ Nb_2O_5(act) + 5/2\ H_2O \rightleftharpoons Nb(OH)_5$	~ –7.4	
$Nb(OH)_5(am,s) \rightleftharpoons Nb(OH)_5$		–7.510
$Nb_2O_5(s) + 5\ H_2O \rightleftharpoons 2\ Nb(OH)_5$		–18.31

[a]The number of significant figures are retained to minimise propagation of round-off errors; they should not be taken to indicate the relative uncertainty of the values, which is always at least one order of magnitude less than indicated.

C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976, p. 252.

M. Filella and P.M. May, The aqueous solution thermodynamics of niobium under conditions of environmental and biological interest. Applied Geochemistry, 122, 104729 (2020). doi:10.1016/j.apgeochem.2020.104729

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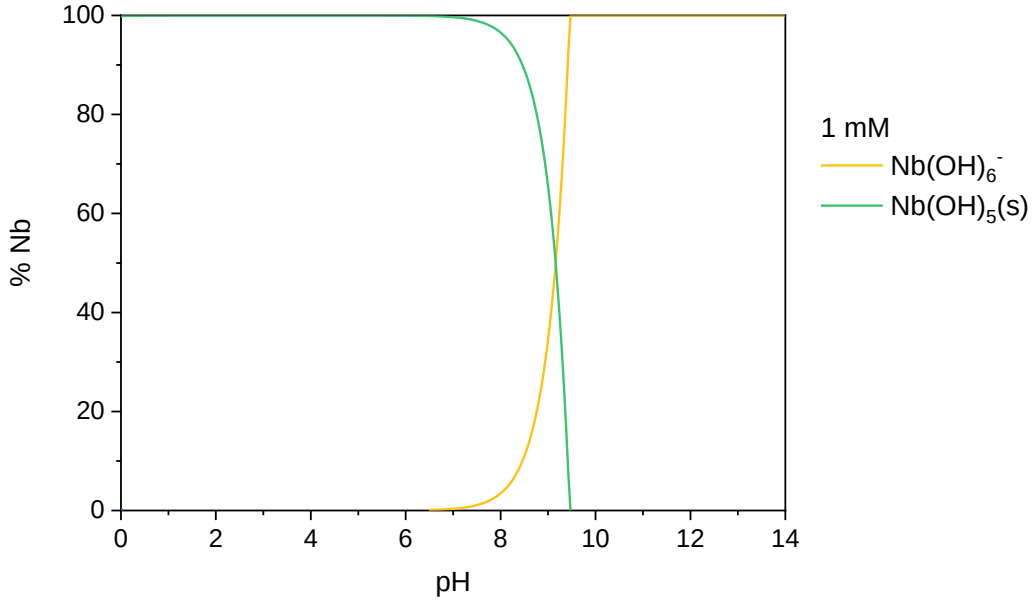
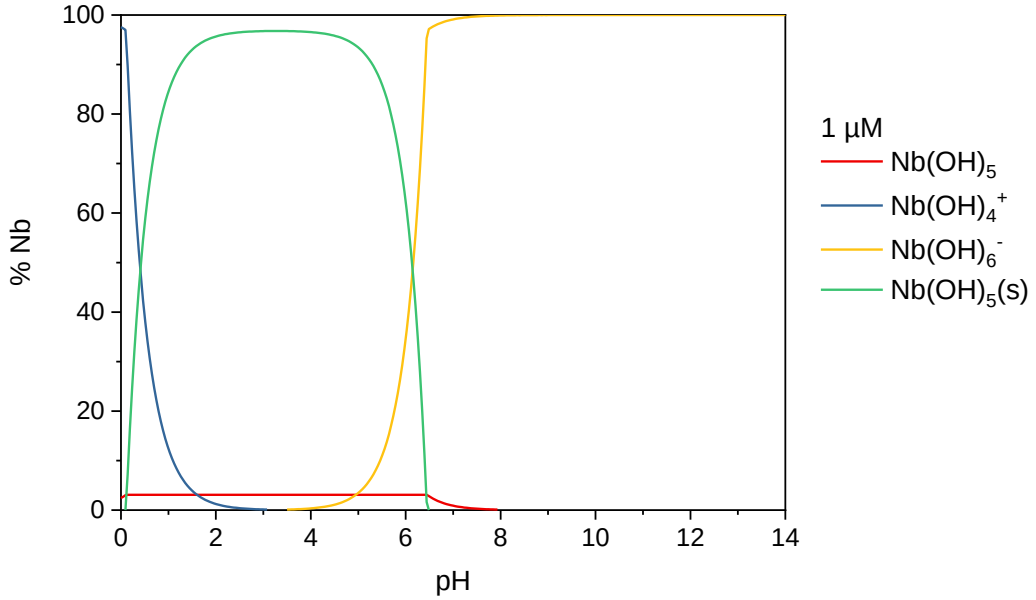
Distribution diagrams

These diagrams have been computed at two Nb 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). The polynuclear species could not be included because isolated.





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