Gadolinium

Equilibrium reaction	lg*K* at infinite dilution and *T* = 298 K	
	Baes and Mesmer, 1976	Brown and Ekberg, 2016
$Gd^{3+} + H_2O \rightleftharpoons GdOH^{2+} + H^+$	−8.0	−7.87 ± 0.05
$Gd^{3+} + 2\ H_2O \rightleftharpoons Gd(OH)_2^+ + 2\ H^+$	(−16.4)	
$Gd^{3+} + 3\ H_2O \rightleftharpoons Gd(OH)_3 + 3\ H^+$	(−25.2)	
$Gd^{3+} + 4\ H_2O \rightleftharpoons Gd(OH)_4^- + 4\ H^+$	−34.4	
$2\ Gd^{3+} + 2\ H_2O \rightleftharpoons Gd_2(OH)_2^{4+} + 2\ H^+$		−14.16 ± 0.20
$3\ Gd^{3+} + 5\ H_2O \rightleftharpoons Gd_3(OH)_5^{4+} + 5\ H^+$		−33.0 ± 0.3
$Gd(OH)_3(s) + 3\ H^+ \rightleftharpoons Gd^{3+} + 3\ H_2O$	15.6	17.20 ± 0.48

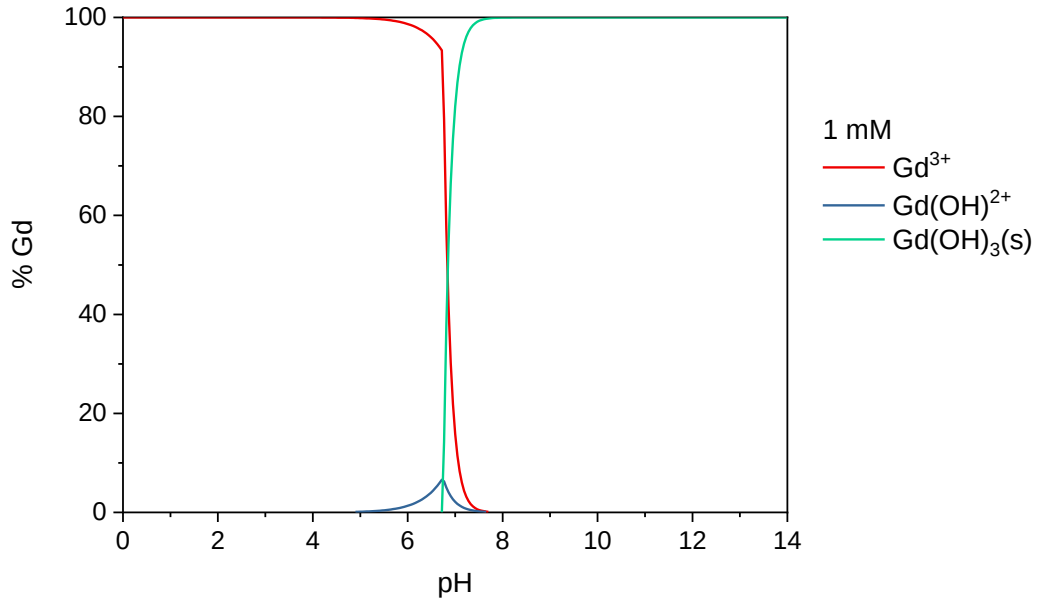
C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976, p. 137.

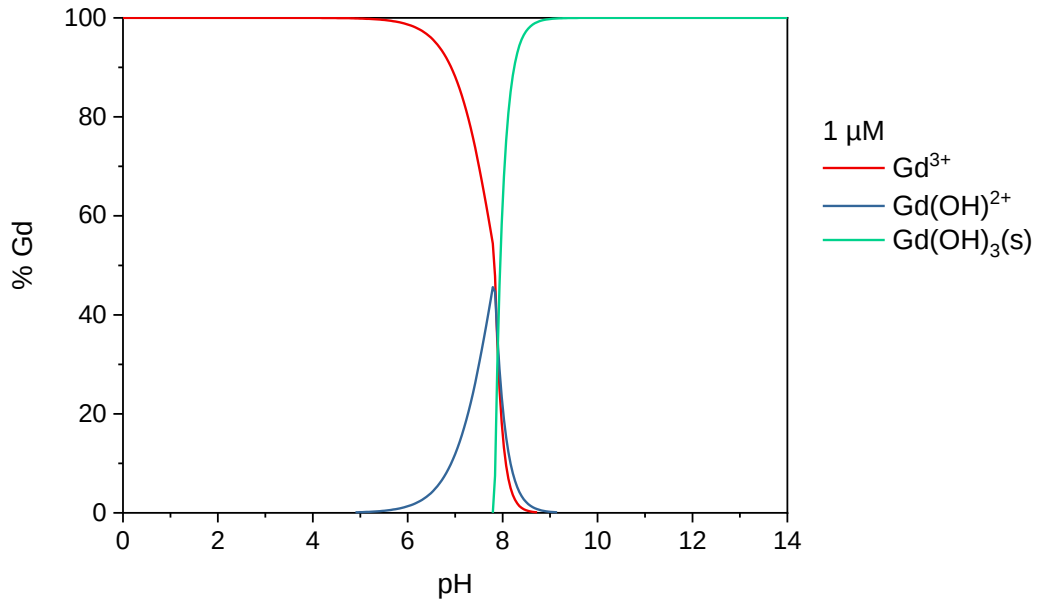
P.L. Brown and C. Ekberg, Hydrolysis of Metal Ions. Wiley, 2016, pp. 284−287.

Contributors: Clemente Bretti, Elvira Bura Nakić, Montserrat Filella, Josep Galceran, Sofia Gama, Elżbieta Gumienna- Kontecka, Lucija Knežević, Gabriele Lando, Přemysl Lubal, Demetrio Milea, Andrzej Mular, Bartosz Orzeł, Michaela Rendošová, Matteo Savastano, Vladimir Sladkov, Kamila Stokowa-Sołtys, Yuliya Toporivska, Zuzana Vargová, Emanuele Zanda, Veronika Zinovyeva

Distribution diagrams

These diagrams have been computed at two Gd 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).





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