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Europium

Equilibrium reactions	lg*K* at infinite dilution and *T* = 298 K			
	Baes and Mesmer, 1976	NIST46	Hummel et al., 2002	Brown and Ekberg, 2016
$Eu^{3+} + H_2O \rightleftharpoons EuOH^{2+} + H^+$	–7.8		–7.64 ± 0.04	–7.66 ± 0.05
$Eu^{3+} + 2\ H_2O \rightleftharpoons Eu(OH)_2^{+} + 2\ H^+$			–15.1 ± 0.2	
$Eu^{3+} + 3\ H_2O \rightleftharpoons Eu(OH)_3 + 3\ H^+$			–23.7 ± 0.1	
$Eu^{3+} + 4\ H_2O \rightleftharpoons Eu(OH)_4^{-} + 4\ H^+$			–36.2 ± 0.5	
$2\ Eu^{3+} + 2\ H_2O \rightleftharpoons Eu_2(OH)_2^{4+} + 2\ H^+$			-	–14.1 ± 0.2
$3\ Eu^{3+} + 5\ H_2O \rightleftharpoons Eu_3(OH)_5^{4+} + 5\ H^+$			-	–32.0 ± 0.3
$Eu(OH)_3(s) + 3\ H^+ \rightleftharpoons Eu^{3+} + 3\ H_2O$	17.5		17.6 ± 0.8 (am) 14.9 ± 0.3 (cr)	16.48 ± 0.30
$Eu(OH)_3(s) \rightleftharpoons Eu^{3+} + 3\ OH^-$		–24.5 ± 0.7 (am) –26.5 (cr)		

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. 135–145.

W. Hummel, U. Berner, E. Curti, F.J. Pearson, T. Thoenen, TECHNICAL REPORT 02-16, Nagra/ PSI Chemical Thermodynamic Data Base 01/01, 2002.

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

Distribution diagrams

These diagrams have been computed at two Eu 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).