

Europium(III)

Reaction	Baes and Mesmer, 1976	NIST46	Hummel et al., 2002	Brown and Ekberg, 2016
$\text{Eu}^{3+} + \text{H}_2\text{O} \rightleftharpoons \text{Eu}(\text{OH})^{2+} + \text{H}^+$	-7.8		-7.64 ± 0.04	-7.66 ± 0.05
$\text{Eu}^{3+} + 2 \text{H}_2\text{O} \rightleftharpoons \text{Eu}(\text{OH})_2^+ + 2 \text{H}^+$			-15.1 ± 0.2	
$\text{Eu}^{3+} + 3 \text{H}_2\text{O} \rightleftharpoons \text{Eu}(\text{OH})_3 + 3 \text{H}^+$			-23.7 ± 0.1	
$\text{Eu}^{3+} + 4 \text{H}_2\text{O} \rightleftharpoons \text{Eu}(\text{OH})_4^- + 4 \text{H}^+$			-36.2 ± 0.5	
$2 \text{Eu}^{3+} + 2 \text{H}_2\text{O} \rightleftharpoons \text{Eu}_2(\text{OH})_2^{4+} + 2 \text{H}^+$			-	-14.1 ± 0.2
$3 \text{Eu}^{3+} + 5 \text{H}_2\text{O} \rightleftharpoons \text{Eu}_3(\text{OH})_5^{4+} + 5 \text{H}^+$			-	-32.0 ± 0.3

$\text{Eu(OH)}_3(\text{s}) + 3 \text{H}^+ \rightleftharpoons \text{Eu}^{3+} + 3 \text{H}_2\text{O}$	17.5		17.6 ± 0.8 (am) 14.9 ± 0.3 (cr)	16.48 ± 0.30
$\text{Eu(OH)}_3(\text{s}) \rightleftharpoons \text{Eu}^{3+} + 3 \text{OH}^-$		-24.5 ± 0.7 (am) -26.5 (cr)		

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

P.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