Matteo Savastano

16 August 2022

Thallium(I)

Reaction	Baes and Mesmer, 1976	Brown and Ekberg, 2016
$Tl^+ + H_2O \rightleftharpoons TlOH + H^+$	–13.21	
$Tl^+ + OH^- \rightleftharpoons TlOH$		0.64 ± 0.05
$Tl^+ + 2\ OH^- \rightleftharpoons Tl(OH)_2^-$		–0.7 ± 0.7
$½\ Tl_2O(s) + H^+ \rightleftharpoons Tl^+ + ½\ H_2O$		13.55 ± 0.20

C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976, p. 335.

P.L. Brown and C. Ekberg, Hydrolysis of Metal Ions. Wiley, 2016, pp. 817–826.

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Thallium(III)

Reaction	Baes and Mesmer, 1976	Brown and Ekberg, 2016
$Tl^{3+} + H_2O \rightleftharpoons TlOH^{2+} + H^+$	–0.62	–0.22 ± 0.19
$Tl^{3+} + 2\ H_2O \rightleftharpoons Tl(OH)_2^+ + 2\ H^+$	–1.57	
$Tl^{3+} + 3\ H_2O \rightleftharpoons Tl(OH)_3 + 3\ H^+$	–3.3	
$Tl^{3+} + 4\ H_2O \rightleftharpoons Tl(OH)_4^- + 4\ H^+$	–15.0	
$½\ Tl_2O_3(s) + 3\ H^+ \rightleftharpoons Tl^{3+} + ⅔\ H_2O$	–3.90 ± 0.10	–3.90 ± 0.10 †

C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976, p. 335.

P.L. Brown and C. Ekberg, Hydrolysis of Metal Ions. Wiley, 2016, pp. 817–826.