Scandium

Equilibrium reactions	lg*K* at infinite dilution and *T* = 298 K	
	Baes and Mesmer, 1976	Brown and Ekberg, 2016
$Sc^{3+} + H_2O \rightleftharpoons ScOH^{2+} + H^+$	–4.3	–4.16 ± 0.05
$Sc^{3+} + 2\ H_2O \rightleftharpoons Sc(OH)_2^+ + 2\ H^+$	–9.7	–9.71 ± 0.30
$Sc^{3+} + 3\ H_2O \rightleftharpoons Sc(OH)_3 + 3\ H^+$	–16.1	–16.08 ± 0.30
$Sc^{3+} + 4\ H_2O \rightleftharpoons Sc(OH)_4^- + 4\ H^+$	–26	–26.7 ± 0.3
$2\ Sc^{3+} + 2\ H_2O \rightleftharpoons Sc_2(OH)_2^{4+} + 2\ H^+$	–6.0	–6.02 ± 0.10
$3\ Sc^{3+} + 5\ H_2O \rightleftharpoons Sc_3(OH)_5^{4+} + 5\ H^+$	–16.34	–16.33 ± 0.10
$Sc(OH)_3(s) + 3\ H^+ \rightleftharpoons Sc^{3+} + 3\ H_2O$		9.17 ± 0.30
$ScO_{1.5}(s) + 3\ H^+ \rightleftharpoons Sc^{3+} + 1.5\ H_2O$		5.53 ± 0.30
$ScO(OH)(c) + 3\ H^+ \rightleftharpoons Sc^{3+} + 2\ H_2O$	9.4	
$Sc(OH)_3(c) + OH^- \rightleftharpoons Sc(OH)_4^-$		–3.5 ± 0.2

C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976, p. 225–236.

P.L. Brown and C. Ekberg, Hydrolysis of Metal Ions. Wiley, 2016, pp. 135–145.

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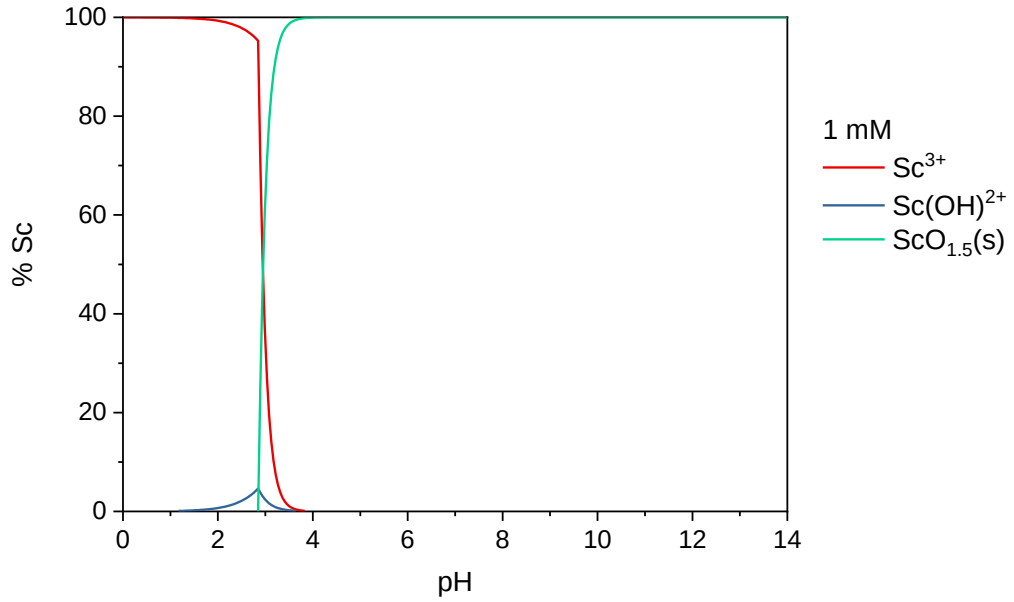
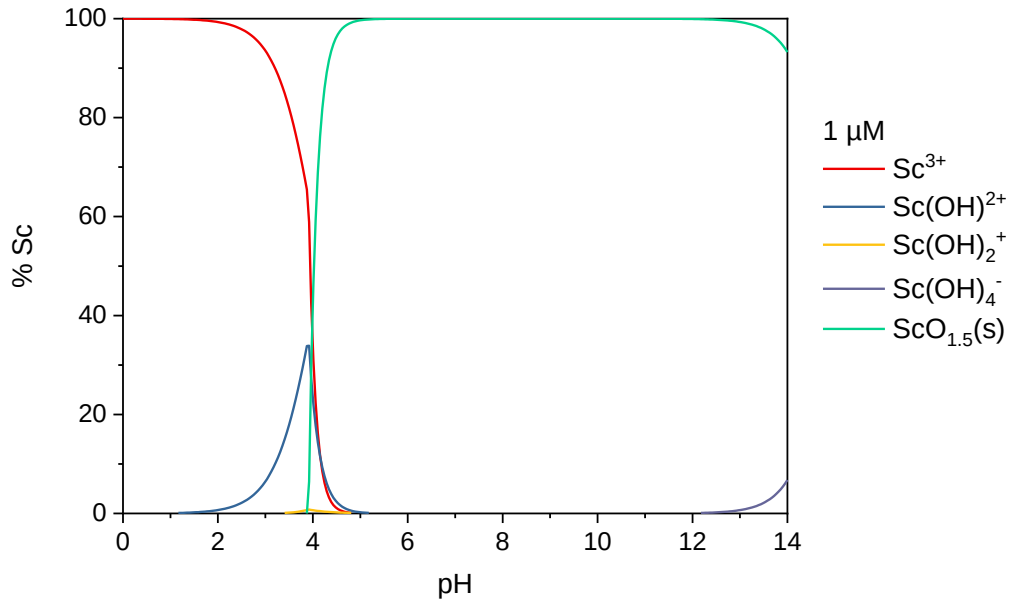
Distribution diagrams

These diagrams have been computed at two Sc 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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