
Equilibrium constants for hydrolysis and associated equilibria in critical compilations

Selenium(-II)

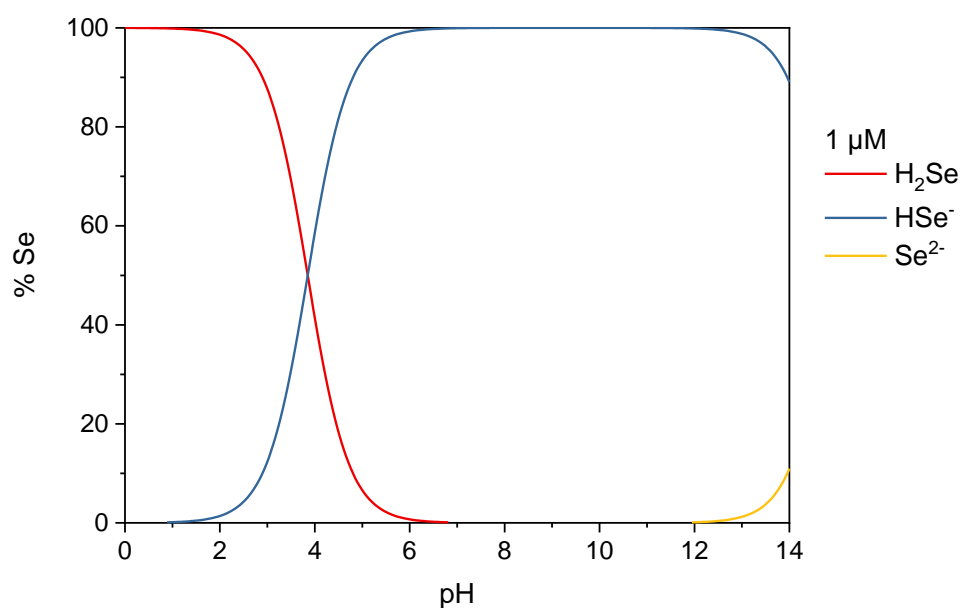
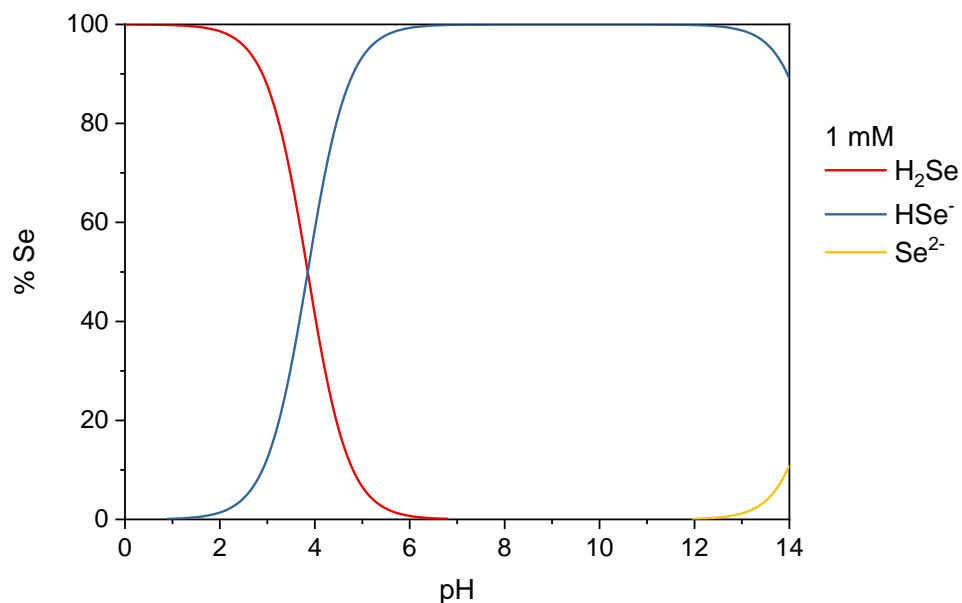
Equilibrium reactions	lgK at infinite dilution and $T = 298 \text{ K}$	
	Olin et al., 2005	Thoenen et al., 2014
$\text{H}_2\text{Se}(\text{g}) \rightleftharpoons \text{H}_2\text{Se}(\text{aq})$	-1.10 ± 0.01	-1.10 ± 0.01
$\text{H}_2\text{Se} \rightleftharpoons \text{HSe}^- + \text{H}^+$	-3.85 ± 0.05	-3.85 ± 0.05
$\text{HSe}^- \rightleftharpoons \text{Se}^{2-} + \text{H}^+$	-14.91 ± 0.20	

Å. Olin, B. Noläng, L.-O. Öhman, E. Osadchii, E. Rosén, Chemical Thermodynamics of Selenium, OECD Pub., 2005.

T. Thoenen, W. Hummel, U. Berner and E. Curti, The PSI/Nagra Chemical Thermodynamic Database 12/07, Villigen: Paul Scherrer Institut PSI, 2014.

Distribution diagrams

These diagrams have been computed at two Se(-II) concentrations ($1 \text{ mM} = 1 \times 10^{-3} \text{ mol L}^{-1}$ and $1 \text{ }\mu\text{M} = 1 \times 10^{-6} \text{ mol L}^{-1}$) with the 'best' equilibrium constants above (in green). Calculations assume $T = 298 \text{ K}$ for the limiting case of zero ionic strength (*i.e.*, even neglecting plotted ions).



Equilibrium constants for hydrolysis and associated equilibria in critical compilations

Selenium(IV)

Equilibrium reactions	lgK at infinite dilution and $T = 298 \text{ K}$		
	Baes and Mesmer, 1976	Olin et al., 2005	Thoenen et al., 2014
$\text{SeO}_3^{2-} + \text{H}^+ \rightleftharpoons \text{HSeO}_3^-$	8.50 ^a	8.36 ± 0.23	8.36 ± 0.23
$\text{HSeO}_3^- + \text{H}^+ \rightleftharpoons \text{H}_2\text{SeO}_3$	2.75 ^a	2.64 ± 0.14	2.64 ± 0.14

^aReaction written as deprotonation reaction in the original publication.

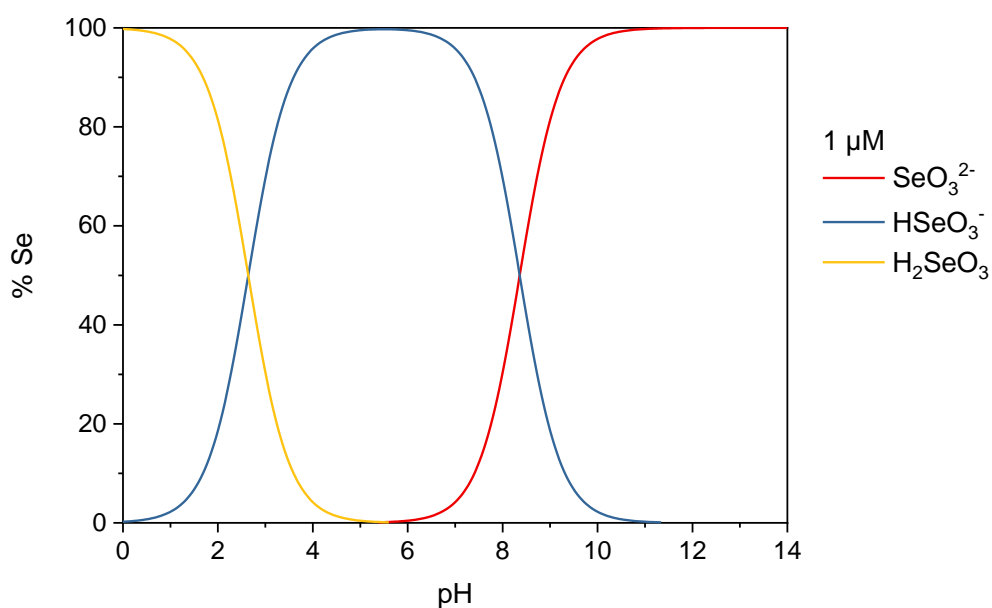
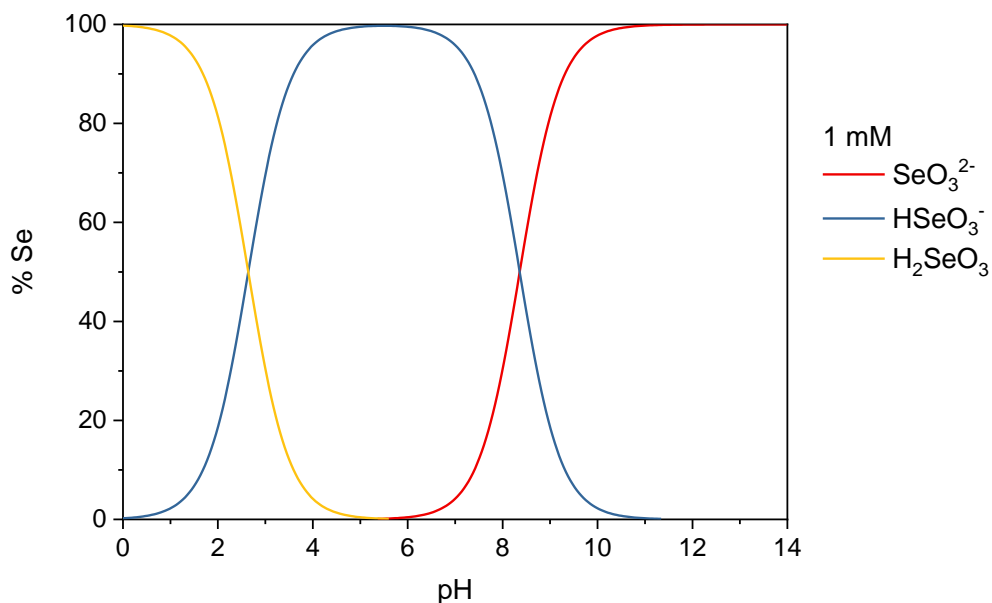
C.F. Baes and R.E. Mesmer, *The Hydrolysis of Cations*. Wiley, New York, 1976, p. 386.

Å. Olin, B. Noläng, L.-O. Öhman, E. Osadchii, E. Rosén, *Chemical Thermodynamics of Selenium*, OECD Pub., 2005.

T. Thoenen, W. Hummel, U. Berner and E. Curti, *The PSI/Nagra Chemical Thermodynamic Database 12/07*, Villigen: Paul Scherrer Institut PSI, 2014.

Distribution diagrams

These diagrams have been computed at two Se(IV) concentrations (1 mM = 1×10^{-3} mol L⁻¹ and 1 μ M = 1×10^{-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).



Selenium(VI)

Equilibrium reactions	lgK at infinite dilution and $T = 298\text{ K}$		
	Baes and Mesmer, 1976	Olin et al., 2005	Thoenen et al., 2014
$\text{SeO}_4^{2-} + \text{H}^+ \rightleftharpoons \text{HSeO}_4^-$	1.360 ^a	1.75 ± 0.10^a	1.75 ± 0.10

^aReaction written as deprotonation reaction in the original publication.

C.F. Baes and R.E. Mesmer, *The Hydrolysis of Cations*. Wiley, New York, 1976, p. 387.

Å. Olin, B. Nöläng, L.-O. Öhman, E. Osadchii and E. Rosén, *Chemical Thermodynamics of Selenium*, OECD Pub., 2005.

T. Thoenen, W. Hummel, U. Berner, E. Curti, *The PSI/Nagra Chemical Thermodynamic Database 12/07*, Villigen: Paul Scherrer Institut PSI, 2014.

Distribution diagrams

These diagrams have been computed at two Se(VI) concentrations (1 mM = 1×10^{-3} mol L⁻¹ and 1 μ M = 1×10^{-6} mol L⁻¹) with the 'best' equilibrium constant above (in green). Calculations assume $T = 298$ K for the limiting case of zero ionic strength (*i.e.*, even neglecting plotted ions).

