Tellurium(-II)

Equilibrium reactions	lg*K* at infinite dilution and *T* = 298 K
	Filella and May, 2019[a]
$Te^{2-} + H^+ \rightleftharpoons HTe^-$	11.81
$HTe^- + H^+ \rightleftharpoons H_2Te$	2.476

[a]The number of significant figures are retained to minimise propagation of round-off errors; they should not be taken to indicate the relative uncertainty of the values, which is always at least one order of magnitude less than indicated.

M. Filella and P.M. May, The aqueous chemistry of tellurium: critically-selected equilibrium constants for the low-molecular-weight inorganic species. Environ. Chem. 16, 289–295 (2019). doi:10.1071/EN19017

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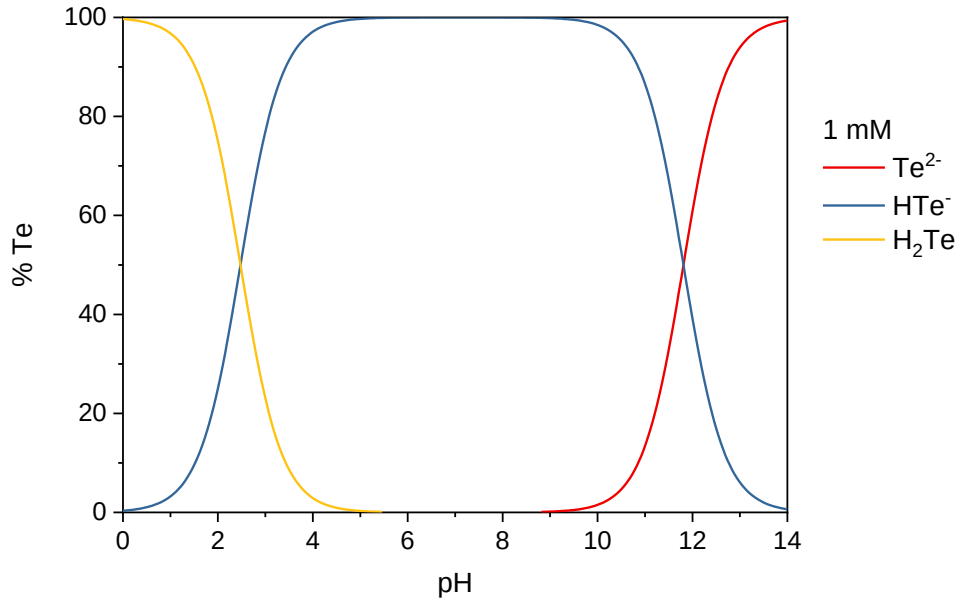
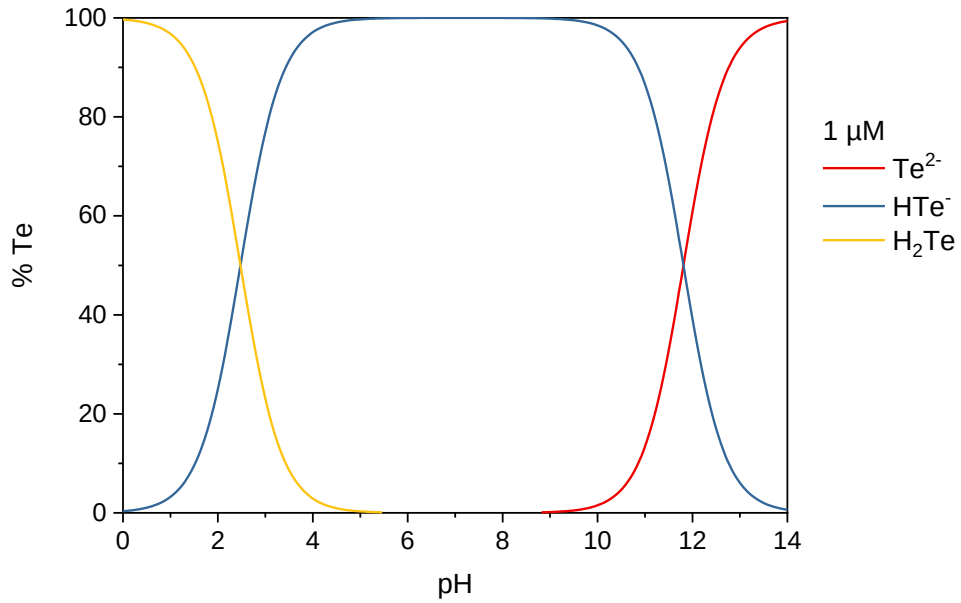
Distribution diagrams

These diagrams have been computed at two Te(-II) concentrations (1 mM = 1x10^{-3} mol L^{-1} and 1 µM = 1x10^{-6} mol L^{-1}) with the 'best' equilibrium constants above. Calculations assume T = 298 K for the limiting case of zero ionic strength (*i.e.*, even neglecting plotted ions).





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Tellurium(IV)

Tellurite structures in solution are best written as TeO_3^{2-}, $HTeO_3^-$, H_2TeO_3 and $Te(OH)_3^+$. Other notations can be found in the literature.

Equilibrium reactions	lg*K* at infinite dilution and *T* = 298 K	
	Baes and Mesmer, 1976	Filella and May, 2019[a]
$TeO_3^{2-} + H^+ \rightleftharpoons HTeO_3^-$		9.928
$HTeO_3^- + H^+ \rightleftharpoons H_2TeO_3$		6.445
$H_2TeO_3 \rightleftharpoons HTeO_3^- + H^+$	–2.68	
$H_2TeO_3 \rightleftharpoons TeO_3^{2-} + 2\ H^+$	–12.5	
$H_2TeO_3 + H^+ \rightleftharpoons Te(OH)_3^+$	3.13	2.415
$TeO_2(s) + H_2O \rightleftharpoons H_2TeO_3$		–4.709

[a]The number of significant figures are retained to minimise propagation of round-off errors; they should not be taken to indicate the relative uncertainty of the values, which is always at least one order of magnitude less than indicated.

C.F. Baes and R.E. Mesmer, The Hydrolysis of Cations. Wiley, New York, 1976, p. 395.

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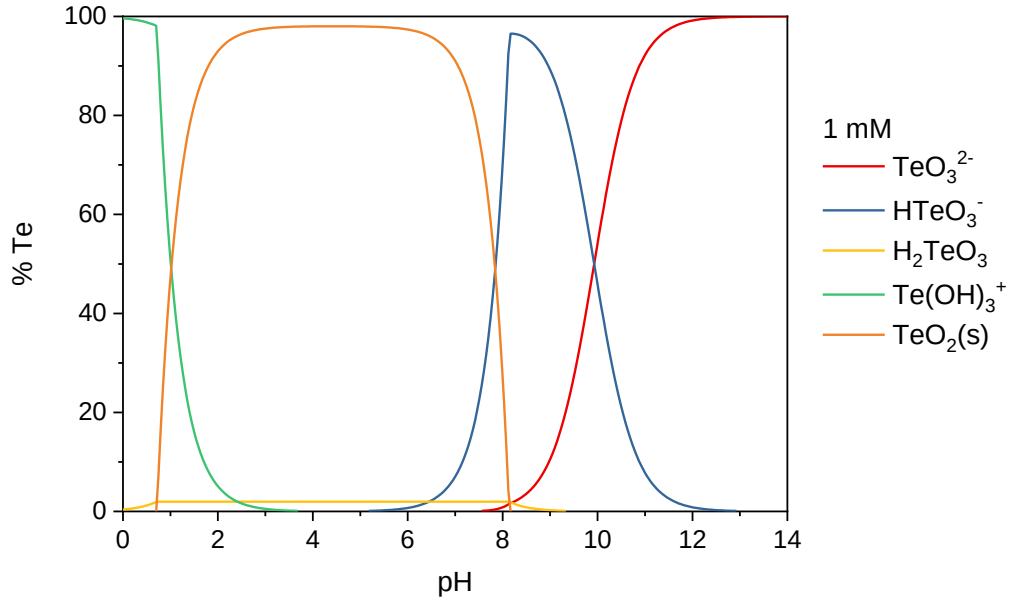
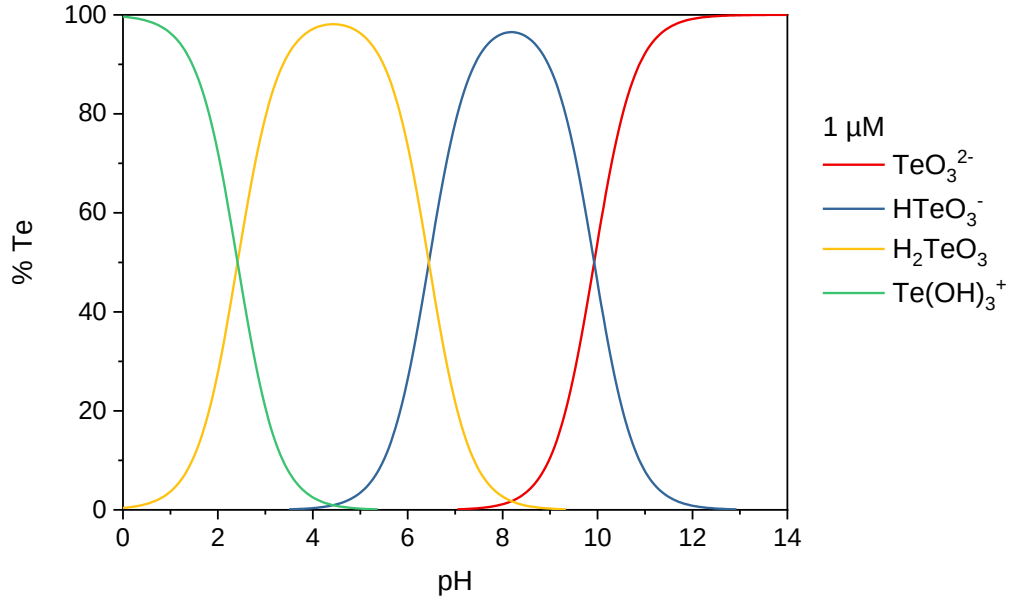
Distribution diagrams

These diagrams have been computed at two Te(IV) 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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Tellurium(VI)

Tellurite structures in solution are best written as TeO_3^{2-}, $HTeO_3^-$, H_2TeO_3 and $Te(OH)_3^+$. Other notations can be found in the literature.

Equilibrium reactions	lg*K* at infinite dilution and *T* = 298 K	
	Baes and Mesmer, 1976	Filella and May, 2019[a]
$TeO_2(OH)_4^{2-} + H^+ \rightleftharpoons TeO(OH)_5^-$		10.83
$TeO(OH)_5^- + H^+ \rightleftharpoons Te(OH)_6$	7.68	7.696
$TeO_2(OH)_4^{2-} + 2\ H^+ \rightleftharpoons Te(OH)_6$	18.68	
$TeO_3(OH)_3^{3-} + 3\ H^+ \rightleftharpoons Te(OH)_6$	34.3	
$2\ Te(OH)_6 \rightleftharpoons Te_2O(OH)_{11}^- + H^+$		–6.929

[a]The number of significant figures are retained to minimise propagation of round-off errors; they should not be taken to indicate the relative uncertainty of the values, which is always at least one order of magnitude less than indicated.

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Distribution diagrams

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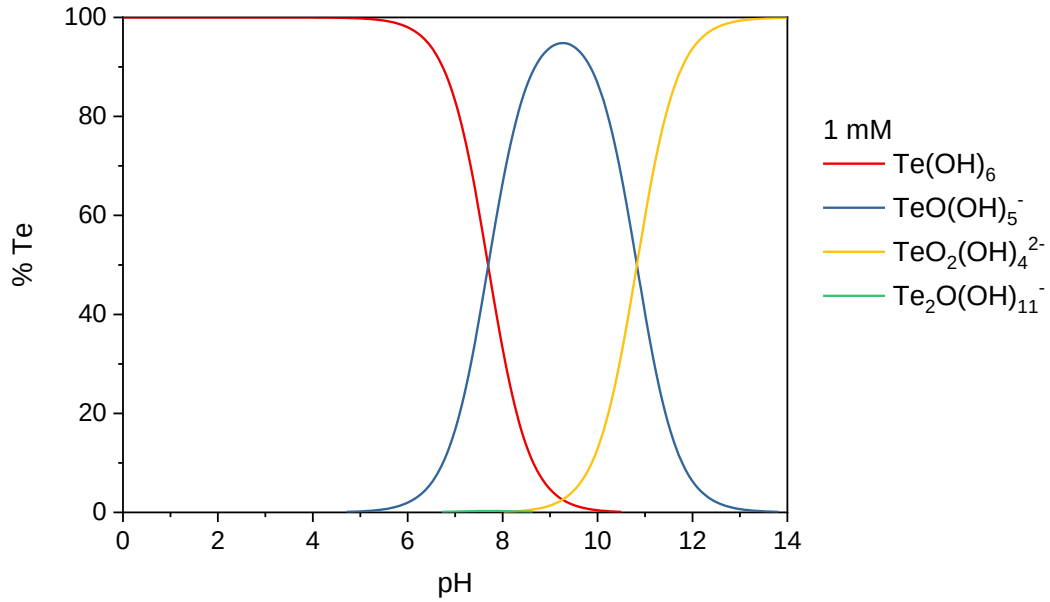

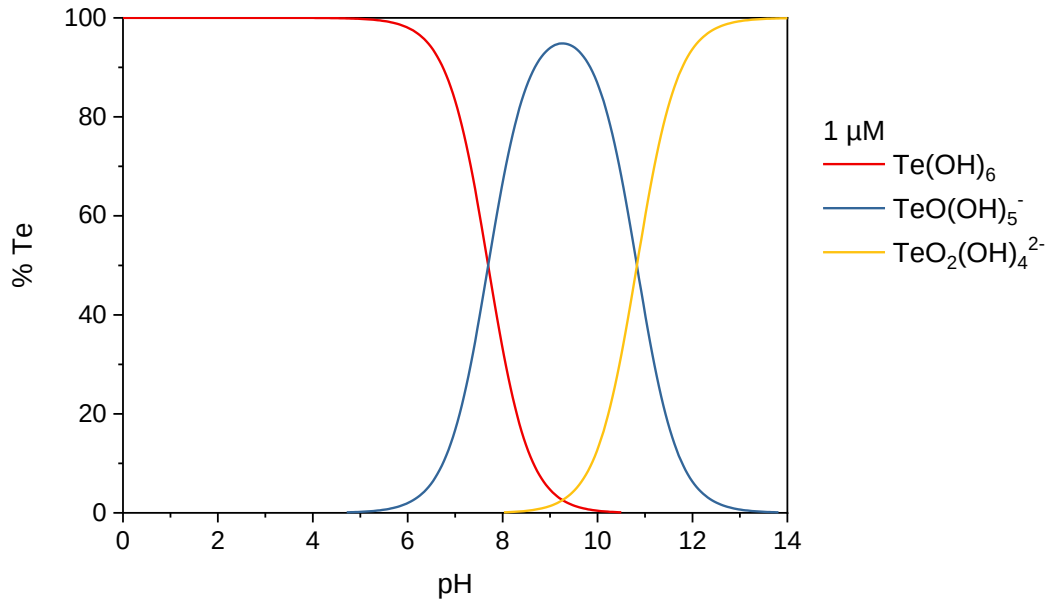

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