

## Arsenic(V)

Equilibrium reaction	lgK at infinite dilution and $T = 298 \text{ K}$		
	Khodakovsky et al. (1968)	Nordstrom and Archer, 2003	Nordstrom et al., 2014
$\text{H}_2\text{AsO}_4^- + \text{H}^+ \rightleftharpoons \text{H}_3\text{AsO}_4$	2.21	$2.26 \pm 0.078$	$2.25 \pm 0.04$
$\text{HAsO}_4^{2-} + \text{H}^+ \rightleftharpoons \text{H}_2\text{AsO}_4^-$	6.93	$6.99 \pm 0.1$	$6.98 \pm 0.11$
$\text{AsO}_4^{3-} + \text{H}^+ \rightleftharpoons \text{HAsO}_4^{2-}$	11.51	$11.80 \pm 0.1$	$11.58 \pm 0.05$

I.L. Khodakovsky, B.N. Ryzhenko and G.B.Naumov, Thermodynamics of aqueous electrolyte solutions at elevated temperatures (Temperature dependence of the heat capacities of ions in aqueous solution). *Geokhimiya*, 12, 1486–1503, 1968.

D.K. Nordstrom and D. Archer, Arsenic thermodynamic data and environmental geochemistry. In: *Arsenic in Ground Water*. Welch AH, Stollenwerk KG (eds) Kluwer Academic Publishers, Amsterdam, 2003, pp. 1-25.

D.K. Nordstrom, J. Majzlan and E. Königsberger, Thermodynamic properties for As minerals & aqueous species. *Reviews in Mineralogy & Geochemistry*, 79, 217–255 (2014).

# Distribution diagrams

These diagrams have been computed at two As(V) concentrations (1 mM =  $1 \times 10^{-3}$  mol L<sup>-1</sup> and 1  $\mu$ M =  $1 \times 10^{-6}$  mol L<sup>-1</sup>) 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).

