Molybdenum(VI)

Equilibrium reactions	lg$K$ at infinite dilution and T = 298 K			
	Baes and Mesmer, 1976	Jolivet, 2000	NIST46	Crea et al., 2017
$MoO_4^{2-} + H^+ \rightleftharpoons HMoO_4^-$	3.89[a]		4.24	4.47 ± 0.02
$MoO_4^{2-} + 2\ H^+ \rightleftharpoons H_2MoO_4$	7.50[a]			8.12 ± 0.03
$HMoO_4^- + H^+ \rightleftharpoons H_2MoO_4$			4.0	
$Mo_7O_{24}^{6-} + H^+ \rightleftharpoons HMo_7O_{24}^{5-}$		4.4		
$HMo_7O_{24}^{5-} + H^+ \rightleftharpoons H_2Mo_7O_{24}^{4-}$		3.5		
$H_2Mo_7O_{24}^{4-} + H^+ \rightleftharpoons H_3Mo_7O_{24}^{3-}$		2.5		
$7\ MoO_4^{2-} + 8\ H^+ \rightleftharpoons Mo_7O_{24}^{6-} + 4\ H_2O$	57.74[a]		52.99[b]	51.93 ± 0.04
$7\ MoO_4^{2-} + 9\ H^+ \rightleftharpoons Mo_7O_{23}(OH)^{5-} + 4\ H_2O$	62.14[a]			58.90 ± 0.02
$7\ MoO_4^{2-} + 10\ H^+ \rightleftharpoons Mo_7O_{22}(OH)_2^{4-} + 4\ H_2O$	65.68[a]			64.63 ± 0.05
$7\ MoO_4^{2-} + 11\ H^+ \rightleftharpoons Mo_7O_{21}(OH)_3^{3-} + 4\ H_2O$	68.21[a]			68.68 ± 0.06
$19\ MoO_4^{2-} + 34\ H^+ \rightleftharpoons Mo_{19}O_{59}^{4-} + 17\ H_2O$	196.3[a]		196[a]	
$MoO_3(s) + H_2O \rightleftharpoons MoO_4^{2-} + 2\ H^+$	−12.06[a]			

[a] at I = 3 M NaClO$_4$
[b] at I = 0.1 M Na$^+$ medium, Data at I = 0 are not available

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Distribution diagrams

These diagrams have been computed at two Mo(VI) concentrations (1 mM = 1×10^{-3} mol L^{-1} and 1 µM = 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).

1 mM
- MoO_4^{2-} (red)
- $HMoO_4^-$ (dark blue)
- H_2MoO_4 (yellow)
- $Mo_7O_{23}(OH)^{5-}$ (green)
- $Mo_7O_{22}(OH)_2^{4-}$ (grey)
- $Mo_7O_{21}(OH)_3^{3-}$ (light blue)

1 µM
- MoO_4^{2-} (red)
- $HMoO_4^-$ (dark blue)
- H_2MoO_4 (yellow)