

## Lead(II)

Equilibrium	Baes and Mesmer, 1976	NIST46	Powell et al., 2009	Brown and Ekberg, 2016	Cataldo et al., 2018
$\text{Pb}^{2+} + \text{H}_2\text{O} = \text{PbOH}^+ + \text{H}^+$	$-7.71 \pm 0.1$	-7.6	$-7.46 \pm 0.06$	$-7.49 \pm 0.13$	$-6.47 \pm 0.03$
$\text{Pb}^{2+} + 2 \text{H}_2\text{O} = \text{Pb(OH)}_2 + 2 \text{H}^+$	$-17.12 \pm 0.1$	-17.1	$-16.94 \pm 0.09$	$-16.99 \pm 0.06$	$-16.12 \pm 0.01$
$\text{Pb}^{2+} + 3 \text{H}_2\text{O} = \text{Pb(OH)}_3^- + 3 \text{H}^+$	$-28.06 \pm 0.05$	-28.1	$-28.03 \pm 0.06$	$-27.94 \pm 0.21$	$-28.4 \pm 0.1$
$\text{Pb}^{2+} + 4 \text{H}_2\text{O} = \text{Pb(OH)}_4^{2-} + 4 \text{H}^+$			-40.8		
$2 \text{Pb}^{2+} + \text{H}_2\text{O} = \text{Pb}_2(\text{OH})_3^+ + \text{H}^+$	$-6.36 \pm 0.1$	-6.4	$-7.28 \pm 0.09$	$-6.73 \pm 0.31$	
$3 \text{Pb}^{2+} + 4 \text{H}_2\text{O} = \text{Pb}_3(\text{OH})_4^{2+} + 4 \text{H}^+$	$-23.88 \pm 0.2$	-23.9	$-23.01 \pm 0.07$	$-23.43 \pm 0.10$	
$3 \text{Pb}^{2+} + 5 \text{H}_2\text{O} = \text{Pb}_3(\text{OH})_5^+ + 5 \text{H}^+$				$-31.11 \pm 0.10$	

$4 \text{Pb}^{2+} + 4 \text{H}_2\text{O} = \text{Pb}_4(\text{OH})_4^{4+} + 4 \text{H}^+$	$-20.88 \pm 0.1$	-20.9	$-20.57 \pm 0.06$	$-20.71 \pm 0.18$	
$6 \text{Pb}^{2+} + 8 \text{H}_2\text{O} = \text{Pb}_6(\text{OH})_8^{4+} + 8 \text{H}^+$	$-43.61 \pm 0.1$	-43.6	$-42.89 \pm 0.07$	$-43.27 \pm 0.47$	
$\text{Pb}^{2+} + \text{H}_2\text{O} + \text{Cl}^- = \text{PbOHCl} + \text{H}^+$					$-7.0 \pm 0.3$
$\text{PbO}(\text{s}) + 2 \text{H}^+ = \text{Pb}^{2+} + \text{H}_2\text{O}$			12.62 (red) <sup>a</sup> 12.90 (yellow) <sup>b</sup>		
$\text{PbO}(\text{s}) + \text{H}_2\text{O} = \text{Pb}^{2+} + 2 \text{OH}^-$	$-15.28 \pm 0.05$ (red)	-15.3	-15.3 (red) <sup>a</sup> -15.1 (yellow) <sup>a</sup>	$-15.37 \pm 0.04$ (red) $-15.1 \pm 0.08$ (yellow)	
$\text{Pb}_2\text{O}(\text{OH})_{2(\text{s})} + \text{H}_2\text{O} = 2 \text{Pb}^{2+} + 4 \text{OH}^-$			-14.9 <sup>a</sup>		
$\text{PbO}(\text{s}) + \text{H}_2\text{O} = \text{Pb}(\text{OH})_2$			-4.4 (red) <sup>a</sup> -4.2 (yellow) <sup>a</sup>		
$\text{Pb}_2\text{O}(\text{OH})_{2(\text{s})} + \text{H}_2\text{O} = 2 \text{Pb}(\text{OH})_2$			-4.0		
$\text{PbO}(\text{s}) + 2 \text{H}_2\text{O} = \text{Pb}(\text{OH})_3^- + \text{H}^+$			-1.4 (red) <sup>a</sup> -1.2 (yellow) <sup>a</sup>		

$\text{Pb}_2\text{O}(\text{OH})_2(\text{s}) + 2 \text{H}_2\text{O} = 2 \text{Pb}(\text{OH})_3^- + 2 \text{H}^+$			-1.0		
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<sup>a</sup>Feitknecht and Schindler (1963).

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