

SELECTED STANDARD REDUCTION POTENTIALS AT 298 K

Reduction half-reactions		E° (V)
$\text{Li}^{1+}(\text{aq}) + \text{e}^{1-}$	\rightleftharpoons	$\text{Li}(\text{s})$ -3.04
$\text{K}^{1+}(\text{aq}) + \text{e}^{1-}$	\rightleftharpoons	$\text{K}(\text{s})$ -2.92
$\text{Ba}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Ba}(\text{s})$ -2.92
$\text{Ca}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Ca}(\text{s})$ -2.84
$\text{Na}^{1+}(\text{aq}) + \text{e}^{1-}$	\rightleftharpoons	$\text{Na}(\text{s})$ -2.71
$\text{Mg}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Mg}(\text{s})$ -2.36
$\text{Al}^{3+}(\text{aq}) + 3 \text{e}^{1-}$	\rightleftharpoons	$\text{Al}(\text{s})$ -1.66
$\text{U}^{3+}(\text{aq}) + 3 \text{e}^{1-}$	\rightleftharpoons	$\text{U}(\text{s})$ -1.66
$\text{Ti}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Ti}(\text{s})$ -1.63
$\text{Mn}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Mn}(\text{s})$ -1.18
$2 \text{H}_2\text{O} + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{H}_2(\text{g}) + 2 \text{OH}^{1-}(\text{aq})$ -0.83
$\text{Zn}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Zn}(\text{s})$ -0.76
$\text{Cr}^{3+}(\text{aq}) + 3 \text{e}^{1-}$	\rightleftharpoons	$\text{Cr}(\text{s})$ -0.74
$\text{HCHO}(\text{aq}) + 2 \text{H}_2\text{O} + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{CH}_3\text{OH}(\text{aq}) + 2 \text{OH}^{1-}(\text{aq})$ -0.59
$\text{Fe}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Fe}(\text{s})$ -0.44
$2 \text{H}_2\text{O} + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{H}_2(\text{g}) + 2 \text{OH}^{1-}(\text{aq})$ -0.41*
$\text{Cd}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Cd}(\text{s})$ -0.40
$\text{PbSO}_4(\text{s}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Pb}(\text{s}) + \text{SO}_4^{2-}(\text{aq})$ -0.36
$\text{In}^{3+}(\text{aq}) + 3 \text{e}^{1-}$	\rightleftharpoons	$\text{In}(\text{s})$ -0.34
$\text{Co}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Co}(\text{s})$ -0.28
$\text{Ni}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Ni}(\text{s})$ -0.23
$\text{Sn}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Sn}(\text{s})$ -0.14
$\text{Pb}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Pb}(\text{s})$ -0.13
$2 \text{H}^{1+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{H}_2(\text{g})$ 0.00
$\text{Sn}^{4+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Sn}^{2+}(\text{aq})$ +0.15
$\text{Cu}^{2+}(\text{aq}) + \text{e}^{1-}$	\rightleftharpoons	$\text{Cu}^{1+}(\text{aq})$ +0.16
$\text{ClO}_4^{1-}(\text{aq}) + \text{H}_2\text{O}(\text{l}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{ClO}_3^{1-}(\text{aq}) + 2 \text{OH}^{1-}(\text{aq})$ +0.17
$\text{AgCl}(\text{s}) + \text{e}^{1-}$	\rightleftharpoons	$\text{Ag}(\text{s}) + \text{Cl}^{1-}(\text{aq})$ +0.22
$\text{PbO}_2(\text{s}) + 2 \text{H}^{1+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{PbO}(\text{s}) + \text{H}_2\text{O}$ +0.28
$\text{Cu}^{2+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Cu}(\text{s})$ +0.34
$\text{Ag}_2\text{O}(\text{s}) + \text{H}_2\text{O} + 2 \text{e}^{1-}$	\rightleftharpoons	$2 \text{Ag}(\text{s}) + 2 \text{OH}^{1-}(\text{aq})$ +0.34
$\text{ClO}_3^{1-}(\text{aq}) + \text{H}_2\text{O}(\text{l}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{ClO}_2^{1-}(\text{aq}) + 2 \text{OH}^{1-}(\text{aq})$ +0.35
$\text{O}_2(\text{g}) + 2 \text{H}_2\text{O} + 4 \text{e}^{1-}$	\rightleftharpoons	$4 \text{OH}^{1-}(\text{aq})$ +0.40
$\text{I}_2(\text{s}) + 2 \text{e}^{1-}$	\rightleftharpoons	$2 \text{I}^{1-}(\text{aq})$ +0.54
$\text{ClO}_2^{1-}(\text{aq}) + \text{H}_2\text{O}(\text{l}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{ClO}^{1-}(\text{aq}) + 2 \text{OH}^{1-}(\text{aq})$ +0.59
$2 \text{AgO}(\text{s}) + \text{H}_2\text{O} + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Ag}_2\text{O}(\text{s}) + 2 \text{OH}^{1-}(\text{aq})$ +0.60
$\text{O}_2(\text{g}) + 2 \text{H}^{1+}(\text{aq}) + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{H}_2\text{O}_2(\text{aq})$ +0.70
$\text{Fe}^{3+}(\text{aq}) + \text{e}^{1-}$	\rightleftharpoons	$\text{Fe}^{2+}(\text{aq})$ +0.77
$\text{BrO}^{1-}(\text{aq}) + \text{H}_2\text{O} + 2 \text{e}^{1-}$	\rightleftharpoons	$\text{Br}^{1-}(\text{aq}) + 2 \text{OH}^{1-}(\text{aq})$ +0.77

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$\text{Ag}^{1+}(aq) + e^{1-}$	\rightleftharpoons	$\text{Ag}(s)$ +0.80
$\text{O}_2(g) + 4 \text{H}^{1+}(aq) + 4 e^{1-}$	\rightleftharpoons	$2 \text{H}_2\text{O}$ +0.82*
$\text{H}_2\text{O}_2(aq) + 2 e^{1-}$	\rightleftharpoons	$2 \text{OH}^{1-}(aq)$ +0.88
$\text{ClO}^{1-}(aq) + \text{H}_2\text{O} + 2 e^{1-}$	\rightleftharpoons	$\text{Cl}^{1-}(aq) + 2 \text{OH}^{1-}(aq)$ +0.89
$\text{Hg}^{2+}(aq) + 2 e^{1-}$	\rightleftharpoons	$\text{Hg}(l)$ +0.85
$\text{NO}_3^{1-}(aq) + 4 \text{H}^{1+}(aq) + 3 e^{1-}$	\rightleftharpoons	$\text{NO}(g) + 2 \text{H}_2\text{O}$ +0.96
$\text{VO}_2^{1+}(aq) + 2 \text{H}^{1+}(aq) + e^{1-}$	\rightleftharpoons	$\text{VO}^{2+}(aq) + \text{H}_2\text{O}$ +1.00
$\text{Br}_2(l) + 2 e^{1-}$	\rightleftharpoons	$2 \text{Br}^{1-}(aq)$ +1.09
$\text{ClO}_4^{1-}(aq) + 2 \text{H}^{1+}(aq) + 2 e^{1-}$	\rightleftharpoons	$\text{ClO}_3^{1-}(aq) + \text{H}_2\text{O}(l)$ +1.19
$\text{O}_2(g) + 4 \text{H}^{1+}(aq) + 4 e^{1-}$	\rightleftharpoons	$2 \text{H}_2\text{O}$ +1.23
$\text{Cr}_2\text{O}_7^{2-}(aq) + 14 \text{H}^{1+}(aq) + 6 e^{1-}$	\rightleftharpoons	$2 \text{Cr}^{3+}(aq) + 7 \text{H}_2\text{O}$ +1.33
$\text{Cl}_2(g) + 2 e^{1-}$	\rightleftharpoons	$2 \text{Cl}^{1-}(aq)$ +1.36
$\text{Au}^{3+}(aq) + 3 e^{1-}$	\rightleftharpoons	$\text{Au}(s)$ +1.50
$\text{MnO}_4^{1-}(aq) + 8 \text{H}^{1+}(aq) + 5 e^{1-}$	\rightleftharpoons	$\text{Mn}^{2+}(aq) + 4 \text{H}_2\text{O}$ +1.51
$\text{PbO}_2(s) + 4 \text{H}^{1+}(aq) + \text{SO}_4^{2-}(aq) + 2 e^{1-}$	\rightleftharpoons	$\text{PbSO}_4(s) + 2 \text{H}_2\text{O}$ +1.69
$\text{H}_2\text{O}_2(aq) + 2 \text{H}^{1+}(aq) + 2 e^{1-}$	\rightleftharpoons	$2 \text{H}_2\text{O}(l)$ +1.76
$\text{S}_2\text{O}_8^{2-}(aq) + 2 e^{1-}$	\rightleftharpoons	$2 \text{SO}_4^{2-}(aq)$ +2.01
$\text{O}_3(g) + 2 \text{H}^{1+}(aq) + 2 e^{1-}$	\rightleftharpoons	$\text{O}_2(g) + \text{H}_2\text{O}$ +2.07
$\text{F}_2(g) + 2 e^{1-}$	\rightleftharpoons	$2 \text{F}^{1-}(aq)$ +2.87

* The half-cell potentials for the $\text{O}_2/\text{H}_2\text{O}$ and the $\text{H}_2\text{O}/\text{H}_2$ systems are for neutral (pH = 7) water and are not standard reduction potentials where $[\text{OH}^{1-}]$ or $[\text{H}^{1+}] = 1.0 \text{ M}$.