

## Table of Standard Reduction Potentials

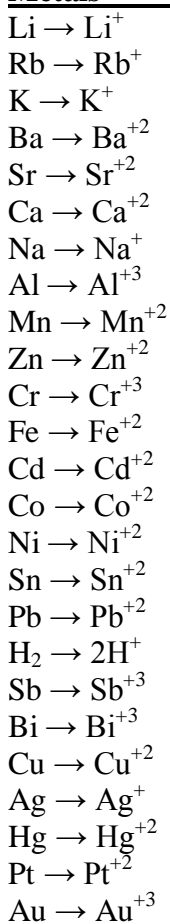
Cathode (Reduction)	Half Reaction Standard Potential $E^{\circ}$ (V)
$\text{Li}^+ (\text{aq}) + \text{e}^- \rightarrow \text{Li} (\text{s})$	-3.0401
$\text{Cs}^+ (\text{aq}) + \text{e}^- \rightarrow \text{Cs} (\text{s})$	-3.026
$\text{Rb}^+ (\text{aq}) + \text{e}^- \rightarrow \text{Rb} (\text{s})$	-2.98
$\text{K}^+ (\text{aq}) + \text{e}^- \rightarrow \text{K} (\text{s})$	-2.931
$\text{Ba}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Ba} (\text{s})$	-2.912
$\text{Sr}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Sr} (\text{s})$	-2.89
$\text{Ca}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Ca} (\text{s})$	-2.868
$\text{Na}^+ (\text{aq}) + \text{e}^- \rightarrow \text{Na} (\text{s})$	-2.71
$\text{Mg}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Mg} (\text{s})$	-2.372
$\text{Al}^{3+} (\text{aq}) + 3 \text{e}^- \rightarrow \text{Al} (\text{s})$	-1.662
$\text{Mn}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Mn} (\text{s})$	-1.185
$2 \text{H}_2\text{O} (\ell) + 2 \text{e}^- \rightarrow \text{H}_2 (\text{g}) + 2 \text{OH}^- (\text{aq})$	-0.8277
$\text{Zn}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Zn} (\text{s})$	-0.7618
$\text{Cr}^{3+} (\text{aq}) + 3 \text{e}^- \rightarrow \text{Cr} (\text{s})$	-0.744
$\text{Fe}^{2+} + 2 \text{e}^- \rightarrow \text{Fe} (\text{s})$	-0.447
$\text{Cd}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Cd} (\text{s})$	-0.403
$\text{Co}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Co} (\text{s})$	-0.28
$\text{Ni}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Ni} (\text{s})$	-0.257
$\text{Sn}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Sn} (\text{s})$	-0.1375
$\text{Pb}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Pb} (\text{s})$	-0.1262
$\text{Fe}^{3+} + 3 \text{e}^- \rightarrow \text{Fe} (\text{s})$	-0.037
$2 \text{H}^+ (\text{aq}) + 2 \text{e}^- \rightarrow \text{H}_2 (\text{g})$	0
$\text{Sn}^{4+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Sn}^{2+} (\text{aq})$	0.151
$\text{Cu}^{2+} (\text{aq}) + \text{e}^- \rightarrow \text{Cu}^+ (\text{aq})$	0.153
$\text{AgCl} (\text{s}) + \text{e}^- \rightarrow \text{Ag} (\text{s}) + \text{Cl}^- (\text{aq})$	0.22233
$\text{ClO}_3^- (\text{aq}) + \text{H}_2\text{O} (\ell) + 2 \text{e}^- \rightarrow \text{ClO}_2^- (\text{aq}) + 2 \text{OH}^- (\text{aq})$	0.33
$\text{Cu}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Cu} (\text{s})$	0.3419
$\text{ClO}_4^- (\text{aq}) + \text{H}_2\text{O} (\ell) + 2 \text{e}^- \rightarrow \text{ClO}_3^- (\text{aq}) + 2 \text{OH}^- (\text{aq})$	0.36
$\text{Cu}^+ (\text{aq}) + \text{e}^- \rightarrow \text{Cu} (\text{s})$	0.521
$\text{I}_2 (\text{s}) + 2 \text{e}^- \rightarrow 2 \text{I}^- (\text{aq})$	0.5355
$\text{MnO}_4^- (\text{aq}) + 2 \text{H}_2\text{O} (\ell) + 3 \text{e}^- \rightarrow \text{MnO}_2 (\text{s}) + 4 \text{OH}^-$	0.595
$\text{ClO}_2^- (\text{aq}) + \text{H}_2\text{O} (\ell) + 2 \text{e}^- \rightarrow \text{ClO}^- (\text{aq}) + 2 \text{OH}^- (\text{aq})$	0.66
$\text{Fe}^{3+} (\text{aq}) + \text{e}^- \rightarrow \text{Fe}^{2+} (\text{aq})$	0.771
$\text{Hg}_2^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow 2\text{Hg} (\ell)$	0.7973
$\text{Ag}^+ (\text{aq}) + \text{e}^- \rightarrow \text{Ag} (\text{s})$	0.7996
$\text{ClO}^- (\text{aq}) + \text{H}_2\text{O} (\ell) + 2 \text{e}^- \rightarrow \text{Cl}^- (\text{aq}) + 2 \text{OH}^- (\text{aq})$	0.81
$\text{Hg}_2^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Hg} (\ell)$	0.851
$2 \text{Hg}^{2+} (\text{aq}) + 2 \text{e}^- \rightarrow \text{Hg}_2^{2+} (\text{aq})$	0.92
$\text{NO}_3^- (\text{aq}) + 4 \text{H}^+ (\text{aq}) + 3 \text{e}^- \rightarrow \text{NO} (\text{g}) + 2 \text{H}_2\text{O} (\ell)$	0.957
$\text{Br}_2 (\ell) + 2 \text{e}^- \rightarrow 2 \text{Br}^- (\text{aq})$	1.066
$\text{O}_2 (\text{g}) + 4 \text{H}^+ (\text{aq}) + 4 \text{e}^- \rightarrow 2 \text{H}_2\text{O} (\ell)$	1.229

$\text{Cr}_2\text{O}_7^{2-}(\text{aq}) + 14 \text{H}^+(\text{aq}) + 6 \text{e}^- \rightarrow 2 \text{Cr}^{3+}(\text{aq}) + 7 \text{H}_2\text{O}(\ell)$	1.232
$\text{Cl}_2(\text{g}) + 2 \text{e}^- \rightarrow 2 \text{Cl}^-(\text{aq})$	1.35827
$\text{MnO}_4^-(\text{aq}) + 8 \text{H}^+(\text{aq}) + 5 \text{e}^- \rightarrow \text{Mn}^{2+}(\text{aq}) + 4 \text{H}_2\text{O}(\ell)$	1.507
$\text{MnO}_4^-(\text{aq}) + 4 \text{H}^+(\text{aq}) + 3 \text{e}^- \rightarrow \text{MnO}_2(\text{s}) + 2 \text{H}_2\text{O}(\ell)$	1.679
$\text{Ce}^{4+}(\text{aq}) + \text{e}^- \rightarrow \text{Ce}^{3+}(\text{aq})$	1.72
$\text{H}_2\text{O}_2(\text{aq}) + 2 \text{H}^+(\text{aq}) + 2 \text{e}^- \rightarrow 2 \text{H}_2\text{O}(\ell)$	1.776
$\text{Co}^{3+}(\text{aq}) + \text{e}^- \rightarrow \text{Co}^{2+}(\text{aq})$	1.92
$\text{S}_2\text{O}_8^{2-}(\text{aq}) + 2 \text{e}^- \rightarrow 2 \text{SO}_4^{2-}(\text{aq})$	2.01
$\text{O}_3(\text{g}) + 2 \text{H}^+(\text{aq}) + 2 \text{e}^- \rightarrow \text{O}_2(\text{g}) + \text{H}_2\text{O}(\ell)$	2.076
$\text{F}_2(\text{g}) + 2 \text{e}^- \rightarrow 2 \text{F}^-(\text{aq})$	2.866

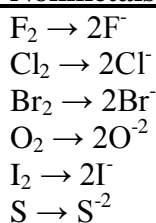
Lide, David R. *CRC Handbook*, 83<sup>rd</sup> ed.; CRC Press: Boca Raton, Florida, 2002; p 8-21–8-31.

## Activity Series

### Metals



### Nonmetals



Brownlee, Raymond B., Fuller, Robert W., and Whitsit, Jesse E. *Elements of Chemistry*; Allyn and Bacon: Boston, Massachusetts, 1959; p 151.