Standard Half-cell Potentials in Aqueous Solution at 25 °C*

Reduction Half-Reaction			Half-cell	$E°$ (V)
Oxidizing Agent		**Reducing Agent**		
$F_2(g) + 2\ e^-$	$\longrightarrow$	$2\ F^-(aq)$	$F_2(g)\|F^-(aq)\|Pt$	+2.87
$H_2O_2(aq) + 2\ H^+(aq) + 2\ e^-$	$\longrightarrow$	$2\ H_2O(\ell)$	$H_2O_2(aq),\ H^+(aq),\ H_2O(\ell)\|Pt$	+1.763
$PbO_2(s) + SO_4^{2-}(aq) + 4\ H^+(aq) + 2\ e^-$	$\longrightarrow$	$PbSO_4(s) + 2\ H_2O(\ell)$	$PbO_2(s)\|SO_4^{2-}(aq),\ H^+(aq)\|PbSO_4(s)\|Pb$	+1.690
$Au^{3+}(aq) + 3\ e^-$	$\longrightarrow$	$Au(s)$	$Au^{3+}(aq)\|Au(s)$	+1.52
$MnO_4^-(aq) + 8\ H^+(aq) + 5\ e^-$	$\longrightarrow$	$Mn^{2+}(aq) + 4\ H_2O(\ell)$	$MnO_4^-(aq),\ H^+(aq),\ Mn^{2+}(aq)\|Pt$	+1.51
$Cr_2O_7^{2-}(aq) + 14\ H^+(aq) + 6\ e^-$	$\longrightarrow$	$2\ Cr^{3+}(aq) + 7\ H_2O(\ell)$	$Cr_2O_7^{2-}(aq),\ H^+(aq),\ Cr^{3+}(aq)\|Pt$	+1.36
$Cl_2(g) + 2\ e^-$	$\longrightarrow$	$2\ Cl^-(aq)$	$Cl_2(g)\|Cl^-(aq)\|Pt$	+1.358
$O_2(g) + 4\ H^+(aq) + 4\ e^-$	$\longrightarrow$	$2\ H_2O(\ell)$	$O_2(g)\|H^+(aq)\|Pt$	+1.229
$Br_2(\ell) + 2\ e^-$	$\longrightarrow$	$2\ Br^-(aq)$	$Br_2(\ell)\|Br^-(aq)\|Pt$	+1.066
$NO_3^-(aq) + 4\ H^+(aq) + 3\ e^-$	$\longrightarrow$	$NO(g) + 2\ H_2O(\ell)$	$NO_3^-(aq),\ H^+(aq)\|NO(g)\|Pt$	+0.96
$OCl^-(aq) + H_2O(\ell) + 2\ e^-$	$\longrightarrow$	$Cl^-(aq) + 2\ OH^-(aq)$	$OCl^-(aq),\ Cl^-(aq),\ OH^-(aq)\|Pt$	+0.89
$Hg^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$Hg(\ell)$	$Hg^{2+}(aq)\|Hg(\ell)$	+0.8535
$Ag^+(aq) + e^-$	$\longrightarrow$	$Ag(s)$	$Ag^+(aq)\|Ag(s)$	+0.7991
$Hg_2^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$2\ Hg(\ell)$	$Hg_2^{2+}(aq)\|Hg(\ell)$	+0.7960
$Fe^{3+}(aq) + e^-$	$\longrightarrow$	$Fe^{2+}(aq)$	$Fe^{3+}(aq),\ Fe^{2+}(aq)\|Pt$	+0.771
$I_2(s) + 2\ e^-$	$\longrightarrow$	$2\ I^-(aq)$	$I_2(s)\|I^-(aq)\|Pt$	+0.535
$O_2(g) + 2\ H_2O(\ell) + 4\ e^-$	$\longrightarrow$	$4\ OH^-(aq)$	$O_2(g)\|OH^-(aq)\|Pt$	+0.401
$Cu^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$Cu(s)$	$Cu^{2+}(aq)\|Cu(s)$	+0.340
$Sn^{4+}(aq) + 2\ e^-$	$\longrightarrow$	$Sn^{2+}(aq)$	$Sn^{4+}(aq),\ Sn^{2+}(aq)\|Pt$	+0.15
$2\ H^+(aq) + 2\ e^-$	$\longrightarrow$	$H_2(g)$	$H^+(aq)\|H_2(g)\|Pt$	0
$Sn^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$Sn(s)$	$Sn^{2+}(aq)\|Sn(s)$	−0.1375
$Ni^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$Ni(s)$	$Ni^{2+}(aq)\|Ni(s)$	−0.25
$PbSO_4(s) + 2\ e^-$	$\longrightarrow$	$Pb(s) + SO_4^{2-}(aq)$	$PbSO_4(s)\|SO_4^{2-}(aq)\|Pb(s)$	−0.3505
$Cd^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$Cd(s)$	$Cd^{2+}(aq)\|Cd(s)$	−0.403
$Fe^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$Fe(s)$	$Fe^{2+}(aq)\|Fe(s)$	−0.44
$Zn^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$Zn(s)$	$Zn^{2+}(aq)\|Zn(s)$	−0.763
$2\ H_2O(\ell) + 2\ e^-$	$\longrightarrow$	$H_2(g) + 2\ OH^-(aq)$	$H_2O(\ell),\ OH^-(aq)\|H_2(g)\|Pt$	−0.8277
$Al^{3+}(aq) + 3\ e^-$	$\longrightarrow$	$Al(s)$	$Al^{3+}(aq)\|Al(s)$	−1.676
$Mg^{2+}(aq) + 2\ e^-$	$\longrightarrow$	$Mg(s)$	$Mg^{2+}(aq)\|Mg(s)$	−2.356
$Na^+(aq) + e^-$	$\longrightarrow$	$Na(s)$	$Na^+(aq)\|Na(s)$	−2.714
$K^+(aq) + e^-$	$\longrightarrow$	$K(s)$	$K^+(aq)\|K(s)$	−2.925
$Li^+(aq) + e^-$	$\longrightarrow$	$Li(s)$	$Li^+(aq)\|Li(s)$	−3.045

Data from Bard, A. J., Parsons, R., and Jordan, J. *Standard Potentials in Aqueous Solution.* New York: Marcel Dekker: 1985. International Union of Pure and Applied Chemistry Commission on Electrochemistry and Electroanalytical Chemistry.

*In volts (V) versus the standard hydrogen electrode. For cases where an electrode is needed to conduct electrons into or out of the half-cell, an electrode that does not react with the solutions is required; Pt is specified in most cases.