

Standard Reduction Potentials at 25°C (298K)

<u>Half-Reaction</u>	<u>E°(V)</u>
$F_2(g) + 2e^- \rightarrow 2F^-(aq)$	+2.87
$Co^{3+}(aq) + e^- \rightarrow Co^{2+}(aq)$	+1.81
$H_2O_2(aq) + 2H^+(aq) + 2e^- \rightarrow 2H_2O(l)$	+1.78
$PbO_2(s) + HSO_4^-(aq) + 3H^+(aq) + 2e^- \rightarrow PbSO_4(s) + 2H_2O(l)$	+1.69
$Au^+(aq) + e^- \rightarrow Au$	+1.69
$Pb^{4+}(aq) + 2e^- \rightarrow Pb^{2+}(aq)$	+1.67
$2HClO(aq) + 2H^+(aq) + 2e^- \rightarrow Cl_2(g) + 2H_2O(l)$	+1.63
$Ce^{4+}(aq) + e^- \rightarrow Ce^{3+}(aq)$	+1.61
$2HBrO(aq) + 2H^+(aq) + 2e^- \rightarrow Br_2(g) + 2H_2O(l)$	+1.60
$BrO_3^-(aq) + 6H^+(aq) + 5e^- \rightarrow Br_2(l) + 3H_2O(l)$	+1.52
$MnO_4^-(aq) + 8H^+(aq) + 5e^- \rightarrow Mn^{2+}(aq) + 4H_2O(l)$	+1.51
$Mn^{3+}(aq) + e^- \rightarrow Mn^{2+}(aq)$	+1.51
$ClO_3^-(aq) + 6H^+(aq) + 5e^- \rightarrow Cl_2(g) + 3H_2O(l)$	+1.47
$Au^{3+}(aq) + 3e^- \rightarrow Au(s)$	+1.40
$Cl_2(g) + 2e^- \rightarrow 2Cl^-(aq)$	+1.36
$Cr_2O_7^{2-}(aq) + 14H^+(aq) + 6e^- \rightarrow 2Cr^{3+}(aq) + 7H_2O(l)$	+1.33
$O_2 + 4H^+(aq) + 4e^- \rightarrow 2H_2O(l)$	+1.23
$ClO_4^-(aq) + 2H^+(aq) + 2e^- \rightarrow ClO_3^-(aq) + H_2O(l)$	+1.23
$MnO_2(s) + 4H^+(aq) + 2e^- \rightarrow Mn^{2+}(aq) + 2H_2O(l)$	+1.23
$IO_3^-(aq) + 6H^+(aq) + 5e^- \rightarrow I_2(s) + 3H_2O(l)$	+1.20
$Br_2(l) + 2e^- \rightarrow 2Br^-(aq)$	+1.09
$HNO_2(aq) + H^+(aq) + e^- \rightarrow NO(g) + H_2O(l)$	+1.00
$NO_3^-(aq) + 4H^+(aq) + 3e^- \rightarrow NO(g) + 2H_2O(l)$	+0.96
$ClO^-(aq) + H_2O(l) + 2e^- \rightarrow Cl^-(aq) + 2OH^-(aq)$	+0.89
$NO_3^-(aq) + 2H^+(aq) + e^- \rightarrow NO_2(g) + H_2O(l)$	+0.80
$Ag^+(aq) + e^- \rightarrow Ag(s)$	+0.80
$Fe^{3+}(aq) + e^- \rightarrow Fe^{2+}(aq)$	+0.77
$BrO^-(aq) + H_2O(l) + 2e^- \rightarrow Br^-(aq) + 2OH^-(aq)$	+0.76
$MnO_4^{2-}(aq) + 2H_2O(l) + 2e^- \rightarrow MnO_2(s) + 4OH^-(aq)$	+0.60
$H_3AsO_4(aq) + 2H^+(aq) + 2e^- \rightarrow H_3AsO_3(aq) + H_2O(l)$	+0.56
$MnO_4^{2-}(aq) + e^- \rightarrow MnO_4^{2-}(aq)$	+0.56
$H_3AsO_4(aq) + 2H^+(aq) + 2e^- \rightarrow H_3AsO_3(aq) + H_2O(l)$	+0.56
$I_2(s) + 2e^- \rightarrow 2I^-(aq)$	+0.54
$Cu^+(aq) + e^- \rightarrow Cu(s)$	+0.52
$H_2SO_3(aq) + 4H^+(aq) + 4e^- \rightarrow S(s) + 3H_2O(l)$	+0.45
$Ag_2CrO_4(s) + 2e^- \rightarrow 2Ag(s) + CrO_4^{2-}(aq)$	+0.45
$O_2(g) + 2H_2O(l) + 4e^- \rightarrow 4OH^-(aq)$	+0.40
$ClO_4^-(aq) + H_2O(l) + 2e^- \rightarrow ClO_3^-(aq) + 2OH^-(aq)$	+0.36
$Cu^{2+}(aq) + 2e^- \rightarrow Cu(s)$	+0.34
$AgCl(s) + e^- \rightarrow Ag^+(aq) + Cl^-(aq)$	+0.22

Increasing Strength of Oxidizing Agent

Increasing Strength of Reducing Agent

Increasing Strength of Oxidizing Agent

<u>Half-Reaction</u>	<u>E°(V)</u>
$\text{HSO}_4^-(\text{aq}) + 3\text{H}^+(\text{aq}) + 2\text{e}^- \rightarrow \text{H}_2\text{SO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$	+0.17
$\text{Cu}^{2+}(\text{aq}) + \text{e}^- \rightarrow \text{Cu}^+(\text{aq})$	+0.16
$\text{Sn}^{4+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Sn}^{2+}(\text{aq})$	+0.15
$\text{AgBr}(\text{s}) + \text{e}^- \rightarrow \text{Ag}(\text{s}) + \text{Br}^-(\text{aq})$	+0.07
$2\text{H}^+(\text{aq}) + 2\text{e}^- \rightarrow \text{H}_2(\text{g})$	+0.00
$\text{Fe}^{3+}(\text{aq}) + 3\text{e}^- \rightarrow \text{Fe}(\text{s})$	-0.04
$\text{O}_2(\text{g}) + \text{H}_2\text{O}(\text{l}) + 2\text{e}^- \rightarrow \text{HO}_2^-(\text{aq}) + \text{OH}^-(\text{aq})$	-0.08
$\text{CrO}_4^{2-}(\text{aq}) + 4\text{H}_2\text{O}(\text{l}) + 3\text{e}^- \rightarrow \text{Cr}(\text{OH})_3(\text{s}) + 5\text{OH}^-(\text{aq})$	-0.13
$\text{Pb}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Pb}(\text{s})$	-0.13
$\text{Sn}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Sn}(\text{s})$	-0.14
$\text{Ni}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Ni}(\text{s})$	-0.23
$\text{Co}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Co}(\text{s})$	-0.28
$\text{Tl}^+(\text{aq}) + \text{e}^- \rightarrow \text{Tl}(\text{s})$	-0.34
$\text{PbSO}_4(\text{s}) + \text{H}^+(\text{aq}) + 2\text{e}^- \rightarrow \text{Pb}(\text{s}) + \text{HSO}_4^-(\text{aq})$	-0.36
$\text{Ti}^{3+}(\text{aq}) + \text{e}^- \rightarrow \text{Ti}^{2+}(\text{aq})$	-0.37
$\text{Cr}^{3+}(\text{aq}) + \text{e}^- \rightarrow \text{Cr}^{2+}(\text{aq})$	-0.41
$\text{Fe}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Fe}(\text{s})$	-0.44
$\text{S}(\text{s}) + 2\text{e}^- \rightarrow \text{S}^{2-}(\text{aq})$	-0.48
$2\text{CO}_2(\text{g}) + 2\text{H}^+(\text{aq}) + 2\text{e}^- \rightarrow \text{H}_2\text{C}_2\text{O}_4(\text{aq})$	-0.49
$\text{Cr}^{3+}(\text{aq}) + 3\text{e}^- \rightarrow \text{Cr}(\text{s})$	-0.74
$\text{Zn}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Zn}(\text{s})$	-0.76
$\text{Cd}(\text{OH})_2(\text{s}) + 2\text{e}^- \rightarrow \text{Cd}(\text{s}) + 2\text{OH}^-(\text{aq})$	-0.81
$2\text{H}_2\text{O}(\text{l}) + 2\text{e}^- \rightarrow \text{H}_2(\text{g}) + 2\text{OH}^-(\text{aq})$	-0.83
$\text{Cr}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Cr}(\text{s})$	-0.91
$\text{Mn}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Mn}(\text{s})$	-1.18
$\text{V}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{V}(\text{s})$	-1.19
$\text{Ti}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Ti}(\text{s})$	-1.63
$\text{Al}^{3+}(\text{aq}) + 3\text{e}^- \rightarrow \text{Al}(\text{s})$	-1.66
$\text{Mg}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Mg}(\text{s})$	-2.36
$\text{Ce}^{3+}(\text{aq}) + 3\text{e}^- \rightarrow \text{Ce}(\text{s})$	-2.48
$\text{Na}^+ + \text{e}^- \rightarrow \text{Na}(\text{s})$	-2.71
$\text{Ca}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Ca}(\text{s})$	-2.87
$\text{Sr}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Sr}(\text{s})$	-2.89
$\text{Ba}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Ba}(\text{s})$	-2.91
$\text{Cs}^+(\text{aq}) + \text{e}^- \rightarrow \text{Cs}(\text{s})$	-2.92
$\text{Rb}^+(\text{aq}) + \text{e}^- \rightarrow \text{Rb}(\text{s})$	-2.93
$\text{K}^+(\text{aq}) + \text{e}^- \rightarrow \text{K}(\text{s})$	-2.93
$\text{Li}^+(\text{aq}) + \text{e}^- \rightarrow \text{Li}(\text{s})$	-3.05

Increasing Strength of Reducing Agent