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## Standard Potentials at 25°C

v5 : 5-06-19

Half Reaction	Potential
$F_2 + 2e^- \rightleftharpoons 2F^-$	+2.87 V
$O_3 + 2H^+ + 2e^- \rightleftharpoons O_2 + H_2O$	+2.07 V
$S_2O_8^{2-} + 2e^- \rightleftharpoons 2SO_4^{2-}$	+2.05 V
$H_2O_2 + 2H^+ + 2e^- \rightleftharpoons 2H_2O$	+1.78 V
$PbO_2 + 3H^+ + HSO_4^- + 2e^- \rightleftharpoons PbSO_4 + 2H_2O$	+1.69 V
$Au^+ + e^- \rightleftharpoons Au$	+1.69 V
$Pb^{4+} + 2e^- \rightleftharpoons Pb^{2+}$	+1.67 V
$2 HClO + 2H^+ + 2e^- \rightleftharpoons Cl_2 + 2H_2O$	+1.63 V
$Ce^{4+} + e^- \rightleftharpoons Ce^{3+}$	+1.61 V
$MnO_4^- + 8H^+ + 5e^- \rightleftharpoons Mn^{2+} + 4H_2O$	+1.51 V
$PbO_2 + 4H^+ + 2e^- \rightleftharpoons Pb^{2+} + 2H_2O$	+1.46 V
$Au^{3+} + 3e^- \rightleftharpoons Au$	+1.40 V
$Cl_2 + 2e^- \rightleftharpoons 2Cl^-$	+1.36 V
$Cr_2O_7^{2-} + 14H^+ + 6e^- \rightleftharpoons 2Cr^{3+} + 7H_2O$	+1.33 V
$O_2 + 4H^+ + 4e^- \rightleftharpoons 2H_2O$	+1.23 V
$MnO_2 + 4H^+ + 2e^- \rightleftharpoons Mn^{2+} + 2H_2O$	+1.21 V
$2IO_3^- + 12H^+ + 10e^- \rightleftharpoons I_2 + 6H_2O$	+1.20 V
$Pt^{2+} + 2e^- \rightleftharpoons Pt$	+1.20 V
$Br_2 + 2e^- \rightleftharpoons 2Br^-$	+1.09 V
$VO_2^+ + 2H^+ + e^- \rightleftharpoons VO^{2+} + H_2O$	+1.00 V
$AuCl_4^- + 3e^- \rightleftharpoons Au + 4Cl^-$	+0.99 V

Half Reaction	Potential
$\text{NO}_3^- + 4\text{H}^+ + 3\text{e}^- \rightleftharpoons \text{NO} + 2\text{H}_2\text{O}$	+0.96 V
$2\text{Hg}^{2+} + 2\text{e}^- \rightleftharpoons \text{Hg}_2^{2+}$	+0.92 V
$\text{Pd}^{2+} + 2\text{e}^- \rightleftharpoons \text{Pd}$	+0.915 V
$\text{ClO}^- + \text{H}_2\text{O} + 2\text{e}^- \rightleftharpoons \text{Cl}^- + 2\text{OH}^-$	+0.89 V
$\text{Ag}^+ + \text{e}^- \rightleftharpoons \text{Ag}$	+0.80 V
$\text{Hg}_2^{2+} + 2\text{e}^- \rightleftharpoons 2\text{Hg}$	+0.79 V
$\text{Fe}^{3+} + \text{e}^- \rightleftharpoons \text{Fe}^{2+}$	+0.77 V
$\text{Ni}(\text{OH})_2 + 2\text{e}^- \rightleftharpoons \text{Ni} + 2\text{OH}^-$	+0.714 V
$\text{MnO}_4^- + 2\text{H}_2\text{O} + 3\text{e}^- \rightleftharpoons \text{MnO}_2 + 4\text{OH}^-$	+0.60 V
$\text{I}_2 + 2\text{e}^- \rightleftharpoons 2\text{I}^-$	+0.54 V
$\text{NiO}(\text{OH}) + \text{H}_2\text{O} + \text{e}^- \rightleftharpoons \text{Ni}(\text{OH})_2 + \text{OH}^-$	+0.49 V
$\text{O}_2 + 2\text{H}_2\text{O} + 4\text{e}^- \rightleftharpoons 4\text{OH}^-$	+0.40 V
$\text{Cu}^{2+} + 2\text{e}^- \rightleftharpoons \text{Cu}$	+0.34 V
$\text{Bi}^{3+} + 3\text{e}^- \rightleftharpoons \text{Bi}$	+0.31 V
$\text{Hg}_2\text{Cl}_2 + 2\text{e}^- \rightleftharpoons 2\text{Hg} + 2\text{Cl}^-$	+0.27 V
$\text{AgCl} + \text{e}^- \rightleftharpoons \text{Ag} + \text{Cl}^-$	+0.22 V
$\text{Sn}^{4+} + 2\text{e}^- \rightleftharpoons \text{Sn}^{2+}$	+0.15 V
$\text{NO}_3^- + \text{H}_2\text{O} + 2\text{e}^- \rightleftharpoons \text{NO}_2^- + 2\text{OH}^-$	+0.010 V
<b><math>2\text{H}^+ + 2\text{e}^- \rightleftharpoons \text{H}_2</math></b>	<b>0.000 V</b>

Half Reaction	Potential
<b><math>2\text{H}^+ + 2\text{e}^- \rightleftharpoons \text{H}_2</math></b>	<b>0.000 V</b>
$\text{Fe}^{3+} + 3\text{e}^- \rightleftharpoons \text{Fe}$	-0.040 V
$\text{Pb}^{2+} + 2\text{e}^- \rightleftharpoons \text{Pb}$	-0.13 V
$\text{Sn}^{2+} + 2\text{e}^- \rightleftharpoons \text{Sn}$	-0.141 V
$\text{Ni}^{2+} + 2\text{e}^- \rightleftharpoons \text{Ni}$	-0.23 V
$\text{SnF}_6^{2-} + 4\text{e}^- \rightleftharpoons \text{Sn} + 6\text{F}^-$	-0.25 V

Half Reaction	Potential
$V^{3+} + e^{-} \rightleftharpoons V^{2+}$	-0.26 V
$Co^{2+} + 2e^{-} \rightleftharpoons Co$	-0.28 V
$In^{3+} + 3e^{-} \rightleftharpoons In$	-0.34 V
$PbSO_4 + H^{+} + 2e^{-} \rightleftharpoons Pb + HSO_4^{-}$	-0.36 V
$Cd^{2+} + 2e^{-} \rightleftharpoons Cd$	-0.40 V
$Cr^{3+} + e^{-} \rightleftharpoons Cr^{2+}$	-0.41 V
$2CO_2(g) + 2H^{+} + 2e^{-} \rightleftharpoons H_2C_2O_4$	-0.432 V
$Fe^{2+} + 2e^{-} \rightleftharpoons Fe$	-0.44 V
$U^{4+} + e^{-} \rightleftharpoons U^{3+}$	-0.61 V
$Cr^{3+} + 3e^{-} \rightleftharpoons Cr$	-0.74 V
$FeCO_3 + 2e^{-} \rightleftharpoons Fe + CO_3^{2-}$	-0.756 V
$Zn^{2+} + 2e^{-} \rightleftharpoons Zn$	-0.76 V
$Cd(OH)_2 + 2e^{-} \rightleftharpoons Cd + 2OH^{-}$	-0.809 V
$2H_2O + 2e^{-} \rightleftharpoons H_2 + 2OH^{-}$	-0.83 V
$Cr^{2+} + 2e^{-} \rightleftharpoons Cr$	-0.91 V
$Zn(NH_3)_4^{2+} + 2e^{-} \rightleftharpoons Zn + 4NH_3$	-1.04 V
$Mn^{2+} + 2e^{-} \rightleftharpoons Mn$	-1.18 V
$V^{2+} + 2e^{-} \rightleftharpoons V$	-1.19 V
$ZnS + 2e^{-} \rightleftharpoons Zn + S^{2-}$	-1.44 V
$Zr^{4+} + 4e^{-} \rightleftharpoons Zr$	-1.45 V
$Al^{3+} + 3e^{-} \rightleftharpoons Al$	-1.66 V
$Mg^{2+} + 2e^{-} \rightleftharpoons Mg$	-2.36 V
$Na^{+} + e^{-} \rightleftharpoons Na$	-2.71 V
$Ca^{2+} + 2e^{-} \rightleftharpoons Ca$	-2.76 V
$Ba^{2+} + 2e^{-} \rightleftharpoons Ba$	-2.90 V
$K^{+} + e^{-} \rightleftharpoons K$	-2.92 V

Half Reaction	Potential
$\text{Li}^+ + \text{e}^- \rightleftharpoons \text{Li}$	-3.05 V

**Note:** all ions are aqueous (aq), many neutral species are solids (s), although some are liquids (l), gases (g), and even aqueous (aq). Use other sources for details on state. They were purposely left off here to save space and keep a cleaner looking table.

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