

Standard Electrode Potentials

(T = 25°C, P_{gas} = 1 atm, [solutions] = 1.0 M)

| Cathode (Reduction) Half-Reaction | Standard Potential E° (volts) |
|--|----------------------------------|
| $\text{Li}^+(\text{aq}) + \text{e}^- \rightarrow \text{Li}(\text{s})$ | -3.04 |
| $\text{K}^+(\text{aq}) + \text{e}^- \rightarrow \text{K}(\text{s})$ | -2.92 |
| $\text{Ca}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Ca}(\text{s})$ | -2.76 |
| $\text{Na}^+(\text{aq}) + \text{e}^- \rightarrow \text{Na}(\text{s})$ | -2.71 |
| $\text{Mg}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Mg}(\text{s})$ | -2.38 |
| $\text{Al}^{3+}(\text{aq}) + 3\text{e}^- \rightarrow \text{Al}(\text{s})$ | -1.66 |
| $2\text{H}_2\text{O}(\text{l}) + 2\text{e}^- \rightarrow \text{H}_2(\text{g}) + 2\text{OH}^-(\text{aq})$ | -0.83 |
| $\text{Zn}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Zn}(\text{s})$ | -0.76 |
| $\text{Cr}^{3+}(\text{aq}) + 3\text{e}^- \rightarrow \text{Cr}(\text{s})$ | -0.74 |
| $\text{Fe}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Fe}(\text{s})$ | -0.41 |
| $\text{Cd}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Cd}(\text{s})$ | -0.40 |
| $\text{Ni}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Ni}(\text{s})$ | -0.23 |
| $\text{Sn}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Sn}(\text{s})$ | -0.14 |
| $\text{Pb}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Pb}(\text{s})$ | -0.13 |
| $\text{Fe}^{3+}(\text{aq}) + 3\text{e}^- \rightarrow \text{Fe}(\text{s})$ | -0.04 |
| $2\text{H}^+(\text{aq}) + 2\text{e}^- \rightarrow \text{H}_2(\text{g})$ | 0.00 |
| $\text{Sn}^{4+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Sn}^{2+}(\text{aq})$ | 0.15 |
| $\text{Cu}^{2+}(\text{aq}) + \text{e}^- \rightarrow \text{Cu}^+(\text{aq})$ | 0.16 |
| $\text{ClO}_4^-(\text{aq}) + \text{H}_2\text{O}(\text{l}) + 2\text{e}^- \rightarrow \text{ClO}_3^-(\text{aq}) + 2\text{OH}^-(\text{aq})$ | 0.17 |
| $\text{AgCl}(\text{s}) + \text{e}^- \rightarrow \text{Ag}(\text{s}) + \text{Cl}^-(\text{aq})$ | 0.22 |
| $\text{Cu}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Cu}(\text{s})$ | 0.34 |
| $\text{ClO}_3^-(\text{aq}) + \text{H}_2\text{O}(\text{l}) + 2\text{e}^- \rightarrow \text{ClO}_2^-(\text{aq}) + 2\text{OH}^-(\text{aq})$ | 0.35 |
| $\text{IO}^-(\text{aq}) + \text{H}_2\text{O}(\text{l}) + 2\text{e}^- \rightarrow \text{I}^-(\text{aq}) + 2\text{OH}^-(\text{aq})$ | 0.49 |
| $\text{Cu}^+(\text{aq}) + \text{e}^- \rightarrow \text{Cu}(\text{s})$ | 0.52 |

| | |
|---|------|
| $I_2(s) + 2e^- \rightarrow 2I^-(aq)$ | 0.54 |
| $ClO_2^-(aq) + H_2O(l) + 2e^- \rightarrow ClO^-(aq) + 2OH^-(aq)$ | 0.59 |
| $Fe^{3+}(aq) + e^- \rightarrow Fe^{2+}(aq)$ | 0.77 |
| $Hg_2^{2+}(aq) + 2e^- \rightarrow 2Hg(l)$ | 0.80 |
| $Ag^+(aq) + e^- \rightarrow Ag(s)$ | 0.80 |
| $Hg^{2+}(aq) + 2e^- \rightarrow Hg(l)$ | 0.85 |
| $ClO^-(aq) + H_2O(l) + 2e^- \rightarrow Cl^-(aq) + 2OH^-(aq)$ | 0.90 |
| $2Hg^{2+}(aq) + 2e^- \rightarrow Hg_2^{2+}(aq)$ | 0.90 |
| $NO_3^-(aq) + 4H^+(aq) + 3e^- \rightarrow NO(g) + 2H_2O(l)$ | 0.96 |
| $Br_2(l) + 2e^- \rightarrow 2Br^-(aq)$ | 1.07 |
| $O_2(g) + 4H^+(aq) + 4e^- \rightarrow 2H_2O(l)$ | 1.23 |
| $Cr_2O_7^{2-}(aq) + 14H^+(aq) + 6e^- \rightarrow 2Cr^{3+}(aq) + 7H_2O(l)$ | 1.33 |
| $Cl_2(g) + 2e^- \rightarrow 2Cl^-(aq)$ | 1.36 |
| $Ce^{4+}(aq) + e^- \rightarrow Ce^{3+}(aq)$ | 1.44 |
| $MnO_4^-(aq) + 8H^+(aq) + 5e^- \rightarrow Mn^{2+}(aq) + 4H_2O(l)$ | 1.49 |
| $H_2O_2(aq) + 2H^+(aq) + 2e^- \rightarrow 2H_2O(l)$ | 1.78 |
| $Co^{3+}(aq) + e^- \rightarrow Co^{2+}(aq)$ | 1.82 |
| $S_2O_8^{2-}(aq) + 2e^- \rightarrow 2SO_4^{2-}(aq)$ | 2.01 |
| $O_3(g) + 2H^+(aq) + 2e^- \rightarrow O_2(g) + H_2O(l)$ | 2.07 |
| $F_2(g) + 2e^- \rightarrow 2F^-(aq)$ | 2.87 |