

For electrolysis of water & brine 1/2 rxns: (Don't need to memorize)

(N)

| STANDARD ELECTRODE POTENTIALS | |
|--|------------------|
| Ionic Concentrations 1 M Water At 298 K, 1 atm | |
| Half-Reaction | E^0 (volts) |
| $F_2(g) + 2e^- \rightarrow 2F^-$ | +2.87 |
| $8H^+ + MnO_4^- + 5e^- \rightarrow Mn^{2+} + 4H_2O$ | +1.51 |
| $Au^{3+} + 3e^- \rightarrow Au(s)$ | +1.50 |
| $Cl_2(g) + 2e^- \rightarrow 2Cl^-$ | +1.36 |
| $14H^+ + Cr_2O_7^{2-} + 6e^- \rightarrow 2Cr^{3+} + 7H_2O$ | +1.23 |
| $4H^+ + O_2(g) + 4e^- \rightarrow 2H_2O$ | +1.23 |
| $4H^+ + MnO_2(s) + 2e^- \rightarrow Mn^{2+} + 2H_2O$ | +1.22 |
| $Br_2(l) + 2e^- \rightarrow 2Br^-$ | +1.09 |
| $Hg^{2+} + 2e^- \rightarrow Hg(l)$ | +0.85 |
| $Ag^+ + e^- \rightarrow Ag(s)$ | +0.80 |
| $Hg_2^{2+} + 2e^- \rightarrow 2Hg(l)$ | +0.80 |
| $Fe^{3+} + e^- \rightarrow Fe^{2+}$ | +0.77 |
| $I_2(s) + 2e^- \rightarrow 2I^-$ | +0.54 |
| $Cu^+ + e^- \rightarrow Cu(s)$ | +0.52 |
| $Cu^{2+} + 2e^- \rightarrow Cu(s)$ | +0.34 |
| $4H^+ + SO_4^{2-} + 2e^- \rightarrow SO_2(aq) + 2H_2O$ | +0.17 |
| $Sn^{4+} + 2e^- \rightarrow Sn^{2+}$ | +0.15 |
| $2H^+ + 2e^- \rightarrow H_2(g)$ | 0.00 |
| $Pb^{2+} + 2e^- \rightarrow Pb(s)$ | -0.13 |
| $Sn^{2+} + 2e^- \rightarrow Sn(s)$ | -0.14 |
| $Ni^{2+} + 2e^- \rightarrow Ni(s)$ | -0.26 |
| $Co^{2+} + 2e^- \rightarrow Co(s)$ | -0.28 |
| $Fe^{2+} + 2e^- \rightarrow Fe(s)$ | -0.45 |
| $Cr^{3+} + 3e^- \rightarrow Cr(s)$ | -0.74 |
| $Zn^{2+} + 2e^- \rightarrow Zn(s)$ | -0.76 |
| $2H_2O + 2e^- \rightarrow 2OH^- + H_2(g)$ | -0.83 |
| $Mn^{2+} + 2e^- \rightarrow Mn(s)$ | -1.19 |
| $Al^{3+} + 3e^- \rightarrow Al(s)$ | -1.66 |
| $Mg^{2+} + 2e^- \rightarrow Mg(s)$ | -2.37 |
| $Na^+ + e^- \rightarrow Na(s)$ | -2.71 |
| $Ca^{2+} + 2e^- \rightarrow Ca(s)$ | -2.87 |
| $Sr^{2+} + 2e^- \rightarrow Sr(s)$ | -2.89 |
| $Ba^{2+} + 2e^- \rightarrow Ba(s)$ | -2.91 |
| $Cs^+ + e^- \rightarrow Cs(s)$ | -2.92 |
| $K^+ + e^- \rightarrow K(s)$ | -2.93 |
| $Rb^+ + e^- \rightarrow Rb(s)$ | -2.98 |
| $Li^+ + e^- \rightarrow Li(s)$ | -3.04 |

ox. for electrolysis of brine (flip)

ox. for electrolysis of H₂O (flip equation for ox.)

red. for electrolysis of H₂O & brine