PSI Electrochemistry Resources

Standard Electrode Potentials – Data Page

Values relative to the standard hydrogen electrode (SHE). (Source: Wikipedia)

- T_0 = 298.15 K (25.00°C)
- p_0 = 1.01325 bar = 1 atm (most literature data are at 1 atm, despite the current standard of 1 bar)
- activity a = 1 or pure solid, pure liquid, or for water
- for ionic species dissolved in water, $a = 1 = \gamma \cdot c / c_0$, where c_0 = 1 mol/L

Half-cell reaction	***E°*** **(V vs. SHE)**
$F_2 + 2\ e^- \rightarrow 2\ F^-$	+2.87
$Ce^{4+} + e^- \rightarrow Ce^{3+}$	+1.61
$MnO_4^- + 8\ H^+ + 5\ e^- \rightarrow Mn^{2+} + 4\ H_2O$	+1.51
$Cl_2 + 2e^- \rightarrow 2\ Cl^-$	+1.36
$O_2 + 4\ H^+ + 4\ e^- \rightarrow 2\ H_2O$	+1.23
$MnO_2 + 4\ H^+ + 2\ e^- \rightarrow Mn^{2+} + 2\ H_2O$	+1.23
$Br_2 + 2e^- \rightarrow 2\ Br^-$	+1.06
$Ag^+ + e^- \rightarrow Ag$	+0.80
$Fe^{3+} + e^- \rightarrow Fe^{2+}$	+0.77
$O_2 + 2\ H^+ + 2\ e^- \rightarrow H_2O_2$	+0.68
$I_2 + 2\ e^- \rightarrow 2\ I^-$	+0.54
$O_2 + 2\ H_2O + 4e^- \rightarrow 4\ OH^-$	+0.40
$Cu^{2+} + 2\ e^- \rightarrow Cu$	+0.34
$AgCl(s) + e^- \rightarrow Ag + Cl^-$	+0.222
$2\ H^+ + 2\ e^- \rightarrow H_2$	**0.00**
$Ni^{2+} + 2\ e^- \rightarrow Ni$	–0.28
$Cd^{2+} + 2\ e^- \rightarrow Cd$	–0.40
$Fe^{2+} + 2\ e^- \rightarrow Fe$	–0.44
$Zn^{2+} + 2\ e^- \rightarrow Zn$	–0.76
$2\ H_2O + 2\ e^- \rightarrow H_2 + 2\ OH^-$	–0.83
$Al^{3+} + 3\ e^- \rightarrow Al$	–1.66
$Na^+ + e^- \rightarrow Na$	–2.71
$Li^+ + e^- \rightarrow Li$	–3.05