

## STANDARD REDUCTION POTENTIALS IN AQUEOUS SOLUTION AT 25°C

| Half-reaction                               |               |                                       | $E^\circ(\text{V})$ |
|---------------------------------------------|---------------|---------------------------------------|---------------------|
| $\text{F}_2(\text{g}) + 2e^-$               | $\rightarrow$ | $2\text{F}^-$                         | 2.87                |
| $\text{Co}^{3+} + e^-$                      | $\rightarrow$ | $\text{Co}^{2+}$                      | 1.82                |
| $\text{Au}^{3+} + 3e^-$                     | $\rightarrow$ | $\text{Au}(\text{s})$                 | 1.50                |
| $\text{Cl}_2(\text{g}) + 2e^-$              | $\rightarrow$ | $2\text{Cl}^-$                        | 1.36                |
| $\text{O}_2(\text{g}) + 4\text{H}^+ + 4e^-$ | $\rightarrow$ | $2\text{H}_2\text{O}(\text{l})$       | 1.23                |
| $\text{Br}_2(\text{l}) + 2e^-$              | $\rightarrow$ | $2\text{Br}^-$                        | 1.07                |
| $2\text{Hg}^{2+} + 2e^-$                    | $\rightarrow$ | $\text{Hg}_2^{2+}$                    | 0.92                |
| $\text{Hg}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Hg}(\text{l})$                 | 0.85                |
| $\text{Ag}^+ + e^-$                         | $\rightarrow$ | $\text{Ag}(\text{s})$                 | 0.80                |
| $\text{Hg}_2^{2+} + 2e^-$                   | $\rightarrow$ | $2\text{Hg}(\text{l})$                | 0.79                |
| $\text{Fe}^{3+} + e^-$                      | $\rightarrow$ | $\text{Fe}^{2+}$                      | 0.77                |
| $\text{I}_2(\text{s}) + 2e^-$               | $\rightarrow$ | $2\text{I}^-$                         | 0.53                |
| $\text{Cu}^+ + e^-$                         | $\rightarrow$ | $\text{Cu}(\text{s})$                 | 0.52                |
| $\text{Cu}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Cu}(\text{s})$                 | 0.34                |
| $\text{Cu}^{2+} + e^-$                      | $\rightarrow$ | $\text{Cu}^+$                         | 0.15                |
| $\text{Sn}^{4+} + 2e^-$                     | $\rightarrow$ | $\text{Sn}^{2+}$                      | 0.15                |
| $\text{S}(\text{s}) + 2\text{H}^+ + 2e^-$   | $\rightarrow$ | $\text{H}_2\text{S}(\text{g})$        | 0.14                |
| $2\text{H}^+ + 2e^-$                        | $\rightarrow$ | $\text{H}_2(\text{g})$                | 0.00                |
| $\text{Pb}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Pb}(\text{s})$                 | -0.13               |
| $\text{Sn}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Sn}(\text{s})$                 | -0.14               |
| $\text{Ni}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Ni}(\text{s})$                 | -0.25               |
| $\text{Co}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Co}(\text{s})$                 | -0.28               |
| $\text{Cd}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Cd}(\text{s})$                 | -0.40               |
| $\text{Cr}^{3+} + e^-$                      | $\rightarrow$ | $\text{Cr}^{2+}$                      | -0.41               |
| $\text{Fe}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Fe}(\text{s})$                 | -0.44               |
| $\text{Cr}^{3+} + 3e^-$                     | $\rightarrow$ | $\text{Cr}(\text{s})$                 | -0.74               |
| $\text{Zn}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Zn}(\text{s})$                 | -0.76               |
| $2\text{H}_2\text{O}(\text{l}) + 2e^-$      | $\rightarrow$ | $\text{H}_2(\text{g}) + 2\text{OH}^-$ | -0.83               |
| $\text{Mn}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Mn}(\text{s})$                 | -1.18               |
| $\text{Al}^{3+} + 3e^-$                     | $\rightarrow$ | $\text{Al}(\text{s})$                 | -1.66               |
| $\text{Be}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Be}(\text{s})$                 | -1.70               |
| $\text{Mg}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Mg}(\text{s})$                 | -2.37               |
| $\text{Na}^+ + e^-$                         | $\rightarrow$ | $\text{Na}(\text{s})$                 | -2.71               |
| $\text{Ca}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Ca}(\text{s})$                 | -2.87               |
| $\text{Sr}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Sr}(\text{s})$                 | -2.89               |
| $\text{Ba}^{2+} + 2e^-$                     | $\rightarrow$ | $\text{Ba}(\text{s})$                 | -2.90               |
| $\text{Rb}^+ + e^-$                         | $\rightarrow$ | $\text{Rb}(\text{s})$                 | -2.92               |
| $\text{K}^+ + e^-$                          | $\rightarrow$ | $\text{K}(\text{s})$                  | -2.92               |
| $\text{Cs}^+ + e^-$                         | $\rightarrow$ | $\text{Cs}(\text{s})$                 | -2.92               |
| $\text{Li}^+ + e^-$                         | $\rightarrow$ | $\text{Li}(\text{s})$                 | -3.05               |

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