

ELECTROCHEMICAL SERIES

There are three tables for this electrochemical series. Each table lists standard reduction potentials, E° values, at 298.15 K (25°C), and at a pressure of 101.325 kPa (1 atm).

Alphabetical Listing

Reaction	E°/V	Reaction	E°/V
$\text{Ag}^+ + e \rightleftharpoons \text{Ag}$	0.7996	$[\text{IrCl}_6]^{3-} + 3 e \rightleftharpoons \text{Ir} + 6 \text{Cl}^-$	0.77
$\text{AgBr} + e \rightleftharpoons \text{Ag} + \text{Br}^-$	0.07133	$\text{K}^+ + e \rightleftharpoons \text{K}$	-2.931
$\text{AgCl} + e \rightleftharpoons \text{Ag} + \text{Cl}^-$	0.22233	$\text{La}^{3+} + 3 e \rightleftharpoons \text{La}$	-2.379
$\text{AgCN} + e \rightleftharpoons \text{Ag} + \text{CN}^-$	-0.017	$\text{Mn}^{2+} + 2 e \rightleftharpoons \text{Mn}$	-1.185
$\text{AgF} + e \rightleftharpoons \text{Ag} + \text{F}^-$	0.779	$\text{Mn}^{3+} + 3 e \rightleftharpoons \text{Mn}^{2+}$	1.5415
$\text{AgI} + e \rightleftharpoons \text{Ag} + \text{I}^-$	-0.15224	$\text{MnO}_2 + 4 \text{H}^+ + 2 e \rightleftharpoons \text{Mn}^{2+} + 2 \text{H}_2\text{O}$	1.224
$\text{Al}^{3+} + 3 e \rightleftharpoons \text{Al}$	-1.662	$\text{MnO}_4^- + 2 \text{H}_2\text{O} + 3 e \rightleftharpoons \text{MnO}_2 + 4 \text{OH}^-$	0.595
$\text{Au}^+ + e \rightleftharpoons \text{Au}$	1.692	$\text{MnO}_4^- + 8 \text{H}^+ + 5 e \rightleftharpoons \text{Mn}^{2+} + 4 \text{H}_2\text{O}$	1.507
$\text{AuBr}_4^- + 3 e \rightleftharpoons \text{Au} + 4 \text{Br}^-$	0.854	$\text{MnO}_4^- + 2 \text{H}_2\text{O} + 2 e \rightleftharpoons \text{MnO}_2 + 4 \text{OH}^-$	0.60
$\text{AuCl}_4^- + 3 e \rightleftharpoons \text{Au} + 4 \text{Cl}^-$	1.002	$\text{Ni}^{2+} + 2 e \rightleftharpoons \text{Ni}$	-0.257
$\text{Bi}^{3+} + 3 e \rightleftharpoons \text{Bi}$	0.308	$\text{O}_2 + 2 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{O}_2$	0.695
$\text{Br}_2(\text{aq}) + 2 e \rightleftharpoons 2 \text{Br}^-$	1.0873	$\text{O}_2 + 4 \text{H}^+ + 4 e \rightleftharpoons 2 \text{H}_2\text{O}$	1.229
$\text{Br}_2(\text{l}) + 2 e \rightleftharpoons 2 \text{Br}^-$	1.066	$\text{O}_2 + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{HO}_2^- + \text{OH}^-$	-0.076
$\text{BrO}_3^- + 6 \text{H}^+ + 6 e \rightleftharpoons \text{Br}^- + 3 \text{H}_2\text{O}$	1.423	$\text{O}_2 + 2 \text{H}_2\text{O} + 2 e \rightleftharpoons \text{H}_2\text{O}_2 + 2 \text{OH}^-$	-0.146
$\text{BrO}_3^- + 6 \text{H}^+ + 5 e \rightleftharpoons 1/2 \text{Br}_2 + 3 \text{H}_2\text{O}$	1.482	$\text{O}_2 + 2 \text{H}_2\text{O} + 4 e \rightleftharpoons 4 \text{OH}^-$	0.401
Calomel electrode, 1 molal KCl	0.2800	$\text{O}(\text{g}) + 2 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{O}$	2.421
Calomel electrode, 1 molar KCl (NCE)	0.2801	$\text{OH}^- + e \rightleftharpoons \text{OH}^{2-}$	2.02
Calomel electrode, 0.1 molar KCl	0.3337	$\text{Pb}^{2+} + 2 e \rightleftharpoons \text{Pb}$	-0.1262
Calomel electrode, saturated KCl (SCE)	0.2412	$\text{PbCl}_2 + 2 e \rightleftharpoons \text{Pb} + 2 \text{Cl}^-$	-0.2675
Calomel electrode, saturated NaCl (SSCE)	0.2360	$\text{PbO} + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{Pb} + 2 \text{OH}^-$	-0.580
$\text{Cd}^{2+} + 2 e \rightleftharpoons \text{Cd}$	-0.4030	$\text{PbO}_2 + 4 \text{H}^+ + 2 e \rightleftharpoons \text{Pb}^{2+} + 2 \text{H}_2\text{O}$	1.455
$\text{Cd}(\text{OH})_2 + 2 e \rightleftharpoons \text{Cd} + 4 \text{OH}^-$	-0.658	$\text{PbSO}_4 + 2 e \rightleftharpoons \text{Pb} + \text{SO}_4^{2-}$	-0.3588
$\text{Ce}^{3+} + 3 e \rightleftharpoons \text{Ce}$	-2.336	$\text{Pd}^{2+} + 2 e \rightleftharpoons \text{Pd}$	0.951
$\text{Cl}_2(\text{g}) + 2 e \rightleftharpoons 2 \text{Cl}^-$	1.35827	$[\text{PdCl}_4]^{2-} + 2 e \rightleftharpoons \text{Pd} + 4 \text{Cl}^-$	0.591
$\text{ClO}_3^- + 6 \text{H}^+ + 5 e \rightleftharpoons 1/2 \text{Cl}_2 + 3 \text{H}_2\text{O}$	1.47	$[\text{PdCl}_6]^{2-} + 2 e \rightleftharpoons [\text{PdCl}_4]^{2-} + 2 \text{Cl}^-$	1.288
$\text{ClO}_3^- + 6 \text{H}^+ + 6 e \rightleftharpoons \text{Cl}^- + 3 \text{H}_2\text{O}$	1.451	$\text{Pt}^{2+} + 2 e \rightleftharpoons \text{Pt}$	1.18
$\text{Co}^{2+} + 2 e \rightleftharpoons \text{Co}$	-0.28	$[\text{PtCl}_4]^{2-} + 2 e \rightleftharpoons \text{Pt} + 4 \text{Cl}^-$	0.755
$\text{Co}^{3+} + e \rightleftharpoons \text{Co}^{2+}$	1.92	$[\text{PtCl}_6]^{2-} + 2 e \rightleftharpoons [\text{PtCl}_4]^{2-} + 2 \text{Cl}^-$	0.68
$[\text{Co}(\text{NH}_3)_6]^{3+} + e \rightleftharpoons [\text{Co}(\text{NH}_3)_6]^{2+}$	0.108	$\text{Rb}^+ + e \rightleftharpoons \text{Rb}$	-2.98
$\text{Co}(\text{OH})_3 + e \rightleftharpoons \text{Co}(\text{OH})_2 + \text{OH}^-$	0.17	$[\text{RhCl}_6]^{3-} + 3 e \rightleftharpoons \text{Rh} + 6 \text{Cl}^-$	0.431
$\text{Cr}^{2+} + 2 e \rightleftharpoons \text{Cr}$	-0.913	$\text{S} + 2 e \rightleftharpoons \text{S}^{2-}$	-0.47627
$\text{Cr}^{3+} + e \rightleftharpoons \text{Cr}^{2+}$	-0.407	$\text{S} + 2 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{S}(\text{aq})$	0.142
$\text{Cr}^{3+} + 3 e \rightleftharpoons \text{Cr}$	-0.744	$\text{S} + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{SH}^- + \text{OH}^-$	-0.478
$\text{Cr}^{\text{III}}\text{EDTA}^- + e \rightleftharpoons \text{Cr}^{\text{II}}\text{EDTA}^{2-}$	-0.953	$2 \text{S} + 2 e \rightleftharpoons \text{S}_2^{2-}$	-0.42836
$\text{Cu}^{2+} + 2 e \rightleftharpoons \text{Cu}$	0.3419	$\text{S}_2\text{O}_6^{2-} + 4 \text{H}^+ + 2 e \rightleftharpoons 2 \text{H}_2\text{SO}_3$	0.564
$\text{Cu}^{2+} + 2 \text{CN}^- + e \rightleftharpoons [\text{Cu}(\text{CN})_2]^-$	1.103	$\text{S}_2\text{O}_8^{2-} + 2 e \rightleftharpoons 2 \text{SO}_4^{2-}$	2.010
$\text{Cu}(\text{OH})_2 + 2 e \rightleftharpoons \text{Cu} + 2 \text{OH}^-$	-0.222	$\text{S}_2\text{O}_8^{2-} + 2 \text{H}^+ + 2 e \rightleftharpoons 2 \text{HSO}_4^-$	2.123
$\text{F}_2 + 2 \text{H}^+ + 2 e \rightleftharpoons 2 \text{HF}$	3.053	$\text{S}_4\text{O}_6^{2-} + 2 e \rightleftharpoons 2 \text{S}_2\text{O}_3^{2-}$	0.08
$\text{F}_2 + 2 e \rightleftharpoons 2 \text{F}^-$	2.866	$2 \text{H}_2\text{SO}_3 + \text{H}^+ + 2 e \rightleftharpoons \text{HS}_2\text{O}_4^- + 2 \text{H}_2\text{O}$	-0.056
$\text{Fe}^{2+} + 2 e \rightleftharpoons \text{Fe}$	-0.447	$\text{H}_2\text{SO}_3 + 4 \text{H}^+ + 4 e \rightleftharpoons \text{S} + 3 \text{H}_2\text{O}$	0.449
$\text{Fe}^{3+} + 3 e \rightleftharpoons \text{Fe}$	-0.037	$2 \text{SO}_3^{2-} + 2 \text{H}_2\text{O} + 2 e \rightleftharpoons \text{S}_2\text{O}_4^{2-} + 4 \text{OH}^-$	-1.12
$\text{Fe}^{3+} + e \rightleftharpoons \text{Fe}^{2+}$	0.771	$2 \text{SO}_3^{2-} + 3 \text{H}_2\text{O} + 4 e \rightleftharpoons \text{S}_2\text{O}_3^{2-} + 6 \text{OH}^-$	-0.571
$[\text{Fe}(\text{CN})_6]^{3-} + e \rightleftharpoons [\text{Fe}(\text{CN})_6]^{4-}$	0.358	$\text{SO}_4^{2-} + 4 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2\text{SO}_3 + \text{H}_2\text{O}$	0.172
$[\text{Fe}(\text{bipy})_2]^{3+} + e \rightleftharpoons [\text{Fe}(\text{bipy})_2]^{2+}$	0.78	$2 \text{SO}_4^{2-} + 4 \text{H}^+ + 2 e \rightleftharpoons \text{S}_2\text{O}_6^{2-} + \text{H}_2\text{O}$	-0.22
$[\text{Fe}(\text{bipy})_3]^{3+} + e \rightleftharpoons [\text{Fe}(\text{bipy})_3]^{2+}$	1.03	$\text{SO}_4^{2-} + \text{H}_2\text{O} + 2 e \rightleftharpoons \text{SO}_3^{2-} + 2 \text{OH}^-$	-0.93
$[\text{Fe}(\text{phen})_3]^{3+} + e \rightleftharpoons [\text{Fe}(\text{phen})_3]^{2+}$	1.147	$\text{Sn}^{2+} + 2 e \rightleftharpoons \text{Sn}$	-0.1375
$2 \text{H}^+ + 2 e \rightleftharpoons \text{H}_2$	0.00000	$\text{Sn}^{4+} + 2 e \rightleftharpoons \text{Sn}^{2+}$	0.151
$\text{H}_2 + 2 e \rightleftharpoons 2 \text{H}^-$	-2.23	$\text{Sr}^+ + e \rightleftharpoons \text{Sr}$	-4.10
$2 \text{H}_2\text{O} + 2 e \rightleftharpoons \text{H}_2 + 2 \text{OH}^-$	-0.8277	$\text{TcO}_4^- + 8 \text{H}^+ + 7 e \rightleftharpoons \text{Tc} + 4 \text{H}_2\text{O}$	0.472
$\text{H}_2\text{O}_2 + 2 \text{H}^+ + 2 e \rightleftharpoons 2 \text{H}_2\text{O}$	1.776	$\text{TeO}_4^- + 8 \text{H}^+ + 7 e \rightleftharpoons \text{Te} + 4 \text{H}_2\text{O}$	0.472
$\text{Hg}^{2+} + 2 e \rightleftharpoons \text{Hg}$	0.851	$\text{Ti}^{3+} + e \rightleftharpoons \text{Ti}^{2+}$	-0.9
$2 \text{Hg}^{2+} + 2 e \rightleftharpoons \text{Hg}_2^{2+}$	0.920	$\text{Ti}_2\text{O}_3 + 3 \text{H}_2\text{O} + 4 e \rightleftharpoons 2 \text{Ti}^+ + 6 \text{OH}^-$	0.02
$\text{Hg}_2^{2+} + 2 e \rightleftharpoons 2 \text{Hg}$	0.7973	$\text{U}^{3+} + 3 e \rightleftharpoons \text{U}$	-1.798
$\text{Hg}_2\text{Br}_2 + 2 e \rightleftharpoons 2 \text{Hg} + 2 \text{Br}^-$	0.13923	$\text{UO}_2^{2+} + 4 \text{H}^+ + 6 e \rightleftharpoons \text{U} + 2 \text{H}_2\text{O}$	-1.444
$\text{Hg}_2\text{Cl}_2 + 2 e \rightleftharpoons 2 \text{Hg} + 2 \text{Cl}^-$	0.26808	$\text{V}^{2+} + 2 e \rightleftharpoons \text{V}$	-1.175
$\text{I}_2 + 2 e \rightleftharpoons 2 \text{I}^-$	0.5355	$\text{V}^{3+} + e \rightleftharpoons \text{V}^{2+}$	-0.255
$\text{I}_3^- + 2 e \rightleftharpoons 3 \text{I}^-$	0.536	$\text{VO}_2^+ + 2 \text{H}^+ + e \rightleftharpoons \text{VO}^{2+} + \text{H}_2\text{O}$	0.991
$2 \text{IO}_3^- + 12 \text{H}^+ + 10 e \rightleftharpoons \text{I}_2 + 6 \text{H}_2\text{O}$	1.195	$\text{WO}_3 + 6 \text{H}^+ + 6 e \rightleftharpoons \text{W} + 3 \text{H}_2\text{O}$	-0.090
$\text{IO}_3^- + 6 \text{H}^+ + 6 e \rightleftharpoons \text{I}^- + 3 \text{H}_2\text{O}$	1.085	$\text{Zn}^{2+} + 2 e \rightleftharpoons \text{Zn}$	-0.7618
$\text{IO}_3^- + 2 \text{H}_2\text{O} + 4 e \rightleftharpoons \text{IO}^- + 4 \text{OH}^-$	0.15	$\text{ZnO}_2^{2-} + 2 \text{H}_2\text{O} + 2 e \rightleftharpoons \text{Zn} + 4 \text{OH}^-$	-1.215
$\text{In}^{3+} + 3 e \rightleftharpoons \text{In}$	-0.3382	$\text{Zn}(\text{OH})_4^{2-} + 2 e \rightleftharpoons \text{Zn} + 4 \text{OH}^-$	-1.199
$\text{Ir}^{3+} + 3 e \rightleftharpoons \text{Ir}$	1.156	$\text{Zn}(\text{OH})_2 + 2 e \rightleftharpoons \text{Zn} + 2 \text{OH}^-$	-1.249
$[\text{IrCl}_6]^{2-} + e \rightleftharpoons [\text{IrCl}_6]^{3-}$	0.8665		