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Standard electrode potential (data page)

The **data values** of standard electrode potentials (E°) are given in the table below, in volts relative to the standard hydrogen electrode, and are for the following conditions:

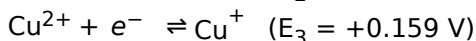
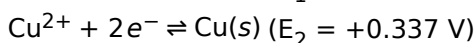
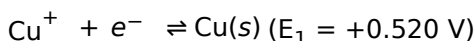
- A temperature of 298.15 K (25.00 °C; 77.00 °F).
- An effective concentration of 1 mol/L for each aqueous species or a species in a mercury amalgam (an alloy of mercury with another metal).
- A partial pressure of 101.325 kPa (absolute) (1 atm, 1.01325 bar) for each gaseous reagent. This pressure is used because most literature data are still given for this value (1 atm) rather than for the current standard of 100 kPa (1 bar).
- An activity of unity for each pure solid, pure liquid, or for water (solvent). The relation in electrode potential of metals in saltwater (as electrolyte) is given in the galvanic series.
- Although many of the half cells are written for multiple-electron transfers, the tabulated potentials are for a single-electron transfer. All of the reactions should be divided by the stoichiometric coefficient for the electron to get the corresponding corrected reaction equation. For example, the equation $\text{Fe}^{2+} + 2e^- \rightleftharpoons \text{Fe}(s)$ (-0.44 V) means that it requires $2 \times 0.44 \text{ eV} = 0.88 \text{ eV}$ of energy to be absorbed (hence the minus sign) in order to create one neutral atom of Fe(s) from one Fe^{2+} ion and two electrons, or 0.44 eV per electron, which is 0.44 J/C of electrons, which is 0.44 V.
- After dividing by the number of electrons, the standard potential E° is related to the standard Gibbs free energy of formation ΔG_f° by:

$$E = \frac{\sum \Delta G_{\text{left}} - \sum \Delta G_{\text{right}}}{F}$$

where F is the Faraday constant. For example, in the equation $\text{Fe}^{2+} + 2e^- \rightleftharpoons \text{Fe}(s)$ (-0.44 V), the Gibbs energy required to create one neutral atom of Fe(s) from one Fe^{2+} ion and two electrons is $2 \times 0.44 \text{ eV} = 0.88 \text{ eV}$, or 84 895 J/mol of electrons, which is just the Gibbs energy of formation of an Fe^{2+} ion, since the energies of formation of e^- and Fe(s) are both zero.

The Nernst equation will then give potentials at concentrations, pressures, and temperatures other than standard.

- Note that the table may lack consistency due to data from different sources. For example:



Calculating the potential using Gibbs Free Energy ($E_3 = 2E_2 - E_1$) gives the potential for E_3 as 0.154 V, not the experimental value of 0.159 V.

Legend: (s) – solid; (l) – liquid; (g) – gas; (aq) – aqueous (default for all charged species); (Hg) – amalgam; bold – water electrolysis equations.

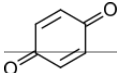
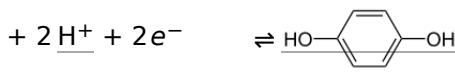
Element	Half-reaction		E° (V)
	Oxidant	\rightleftharpoons Reductant	
Sr	<u>Sr^+</u> + e^-	\rightleftharpoons Sr(s)	-4.101
Ca	<u>Ca^+</u> + e^-	\rightleftharpoons Ca(s)	-3.8
Pr	<u>Pr^{3+}</u> + e^-	\rightleftharpoons Pr^{2+}	-3.1
N	<u>$3\text{N}_2(g)$</u> + <u>2H^+</u> + $2e^-$	\rightleftharpoons <u>$2\text{HN}_3(aq)$</u>	-3.09
Li	<u>Li^+</u> + e^-	\rightleftharpoons Li(s)	-3.0401
N	<u>$\text{N}_2(g)$</u> + <u>$4\text{H}_2\text{O}$</u> + $2e^-$	\rightleftharpoons <u>$2\text{NH}_2\text{OH}(aq)$</u> + <u>$2\text{OH}^-$</u>	-3.04
Cs	<u>Cs^+</u> + e^-	\rightleftharpoons Cs(s)	-3.026

Element	Half-reaction		E° (V)
	Oxidant	\rightleftharpoons Reductant	
Ca	$\text{Ca(OH)}_2 + 2e^-$	$\rightleftharpoons \text{Ca(s)} + 2\text{OH}^-$	-3.02
Er	$\text{Er}^{3+} + e^-$	$\rightleftharpoons \text{Er}^{2+}$	-3.0
Ba	$\text{Ba(OH)}_2 + 2e^-$	$\rightleftharpoons \text{Ba(s)} + 2\text{OH}^-$	-2.99
Rb	$\text{Rb}^+ + e^-$	$\rightleftharpoons \text{Rb(s)}$	-2.98
K	$\text{K}^+ + e^-$	$\rightleftharpoons \text{K(s)}$	-2.931
Ba	$\text{Ba}^{2+} + 2e^-$	$\rightleftharpoons \text{Ba(s)}$	-2.912
La	$\text{La(OH)}_3(\text{s}) + 3e^-$	$\rightleftharpoons \text{La(s)} + 3\text{OH}^-$	-2.90
Fr	$\text{Fr}^+ + e^-$	$\rightleftharpoons \text{Fr(s)}$	-2.9
Sr	$\text{Sr}^{2+} + 2e^-$	$\rightleftharpoons \text{Sr(s)}$	-2.899
Sr	$\text{Sr(OH)}_2 + 2e^-$	$\rightleftharpoons \text{Sr(s)} + 2\text{OH}^-$	-2.88
Ca	$\text{Ca}^{2+} + 2e^-$	$\rightleftharpoons \text{Ca(s)}$	-2.868
Li	$\text{Li}^+ + \text{C}_6(\text{s}) + e^-$	$\rightleftharpoons \text{LiC}_6(\text{s})$	-2.84
Eu	$\text{Eu}^{2+} + 2e^-$	$\rightleftharpoons \text{Eu(s)}$	-2.812
Ra	$\text{Ra}^{2+} + 2e^-$	$\rightleftharpoons \text{Ra(s)}$	-2.8
Ho	$\text{Ho}^{3+} + e^-$	$\rightleftharpoons \text{Ho}^{2+}$	-2.8
Bk	$\text{Bk}^{3+} + e^-$	$\rightleftharpoons \text{Bk}^{2+}$	-2.8
Yb	$\text{Yb}^{2+} + 2e^-$	$\rightleftharpoons \text{Yb(s)}$	-2.76
Na	$\text{Na}^+ + e^-$	$\rightleftharpoons \text{Na(s)}$	-2.71
Mg	$\text{Mg}^+ + e^-$	$\rightleftharpoons \text{Mg(s)}$	-2.70
Nd	$\text{Nd}^{3+} + e^-$	$\rightleftharpoons \text{Nd}^{2+}$	-2.7
Mg	$\text{Mg(OH)}_2 + 2e^-$	$\rightleftharpoons \text{Mg(s)} + 2\text{OH}^-$	-2.690
Sm	$\text{Sm}^{2+} + 2e^-$	$\rightleftharpoons \text{Sm(s)}$	-2.68
Be	$\text{Be}_2\text{O}_3^{2-} + 3\text{H}_2\text{O} + 4e^-$	$\rightleftharpoons 2\text{Be(s)} + 6\text{OH}^-$	-2.63
Pm	$\text{Pm}^{3+} + e^-$	$\rightleftharpoons \text{Pm}^{2+}$	-2.6
Dy	$\text{Dy}^{3+} + e^-$	$\rightleftharpoons \text{Dy}^{2+}$	-2.6
No	$\text{No}^{2+} + 2e^-$	$\rightleftharpoons \text{No}$	-2.50
Hf	$\text{HfO(OH)}_2 + \text{H}_2\text{O} + 4e^-$	$\rightleftharpoons \text{Hf(s)} + 4\text{OH}^-$	-2.50
Th	$\text{Th(OH)}_4 + 4e^-$	$\rightleftharpoons \text{Th(s)} + 4\text{OH}^-$	-2.48
Md	$\text{Md}^{2+} + 2e^-$	$\rightleftharpoons \text{Md}$	-2.40
Tm	$\text{Tm}^{2+} + 2e^-$	$\rightleftharpoons \text{Tm(s)}$	-2.4
La	$\text{La}^{3+} + 3e^-$	$\rightleftharpoons \text{La(s)}$	-2.379
Y	$\text{Y}^{3+} + 3e^-$	$\rightleftharpoons \text{Y(s)}$	-2.372
Mg	$\text{Mg}^{2+} + 2e^-$	$\rightleftharpoons \text{Mg(s)}$	-2.372
Zr	$\text{ZrO(OH)}_2(\text{s}) + \text{H}_2\text{O} + 4e^-$	$\rightleftharpoons \text{Zr(s)} + 4\text{OH}^-$	-2.36
Pr	$\text{Pr}^{3+} + 3e^-$	$\rightleftharpoons \text{Pr(s)}$	-2.353
Ce	$\text{Ce}^{3+} + 3e^-$	$\rightleftharpoons \text{Ce(s)}$	-2.336
Er	$\text{Er}^{3+} + 3e^-$	$\rightleftharpoons \text{Er(s)}$	-2.331
Ho	$\text{Ho}^{3+} + 3e^-$	$\rightleftharpoons \text{Ho(s)}$	-2.33
Al	$\text{H}_2\text{AlO}_3^- + \text{H}_2\text{O} + 3e^-$	$\rightleftharpoons \text{Al(s)} + 4\text{OH}^-$	-2.33
Nd	$\text{Nd}^{3+} + 3e^-$	$\rightleftharpoons \text{Nd(s)}$	-2.323
Tm	$\text{Tm}^{3+} + 3e^-$	$\rightleftharpoons \text{Tm(s)}$	-2.319
Al	$\text{Al(OH)}_3(\text{s}) + 3e^-$	$\rightleftharpoons \text{Al(s)} + 3\text{OH}^-$	-2.31

Element	Half-reaction		E° (V)
	Oxidant	\rightleftharpoons Reductant	
Sm	$\text{Sm}^{3+} + 3e^-$	$\rightleftharpoons \text{Sm}(s)$	-2.304
Fm	$\text{Fm}^{2+} + 2e^-$	$\rightleftharpoons \text{Fm}$	-2.30
Am	$\text{Am}^{3+} + e^-$	$\rightleftharpoons \text{Am}^{2+}$	-2.3
Dy	$\text{Dy}^{3+} + 3e^-$	$\rightleftharpoons \text{Dy}(s)$	-2.295
Lu	$\text{Lu}^{3+} + 3e^-$	$\rightleftharpoons \text{Lu}(s)$	-2.28
Tb	$\text{Tb}^{3+} + 3e^-$	$\rightleftharpoons \text{Tb}(s)$	-2.28
Gd	$\text{Gd}^{3+} + 3e^-$	$\rightleftharpoons \text{Gd}(s)$	-2.279
H	$\text{H}_2(g) + 2e^-$	$\rightleftharpoons 2\text{H}^-$	-2.23
Es	$\text{Es}^{2+} + 2e^-$	$\rightleftharpoons \text{Es}(s)$	-2.23
Pm	$\text{Pm}^{2+} + 2e^-$	$\rightleftharpoons \text{Pm}(s)$	-2.2
Tm	$\text{Tm}^{3+} + e^-$	$\rightleftharpoons \text{Tm}^{2+}$	-2.2
Dy	$\text{Dy}^{2+} + 2e^-$	$\rightleftharpoons \text{Dy}(s)$	-2.2
Ac	$\text{Ac}^{3+} + 3e^-$	$\rightleftharpoons \text{Ac}(s)$	-2.20
Yb	$\text{Yb}^{3+} + 3e^-$	$\rightleftharpoons \text{Yb}(s)$	-2.19
Cf	$\text{Cf}^{2+} + 2e^-$	$\rightleftharpoons \text{Cf}(s)$	-2.12
Nd	$\text{Nd}^{2+} + 2e^-$	$\rightleftharpoons \text{Nd}(s)$	-2.1
Ho	$\text{Ho}^{2+} + 2e^-$	$\rightleftharpoons \text{Ho}(s)$	-2.1
Sc	$\text{Sc}^{3+} + 3e^-$	$\rightleftharpoons \text{Sc}(s)$	-2.077
Al	$\text{AlF}_6^{3-} + 3e^-$	$\rightleftharpoons \text{Al}(s) + 6\text{F}^-$	-2.069
Am	$\text{Am}^{3+} + 3e^-$	$\rightleftharpoons \text{Am}(s)$	-2.048
Cm	$\text{Cm}^{3+} + 3e^-$	$\rightleftharpoons \text{Cm}(s)$	-2.04
Pu	$\text{Pu}^{3+} + 3e^-$	$\rightleftharpoons \text{Pu}(s)$	-2.031
Pr	$\text{Pr}^{2+} + 2e^-$	$\rightleftharpoons \text{Pr}(s)$	-2.0
Er	$\text{Er}^{2+} + 2e^-$	$\rightleftharpoons \text{Er}(s)$	-2.0
Eu	$\text{Eu}^{3+} + 3e^-$	$\rightleftharpoons \text{Eu}(s)$	-1.991
Lr	$\text{Lr}^{3+} + 3e^-$	$\rightleftharpoons \text{Lr}$	-1.96
Cf	$\text{Cf}^{3+} + 3e^-$	$\rightleftharpoons \text{Cf}(s)$	-1.94
Es	$\text{Es}^{3+} + 3e^-$	$\rightleftharpoons \text{Es}(s)$	-1.91
Pa	$\text{Pa}^{4+} + e^-$	$\rightleftharpoons \text{Pa}^{3+}$	-1.9
Am	$\text{Am}^{2+} + 2e^-$	$\rightleftharpoons \text{Am}(s)$	-1.9
Th	$\text{Th}^{4+} + 4e^-$	$\rightleftharpoons \text{Th}(s)$	-1.899
Fm	$\text{Fm}^{3+} + 3e^-$	$\rightleftharpoons \text{Fm}$	-1.89
Np	$\text{Np}^{3+} + 3e^-$	$\rightleftharpoons \text{Np}(s)$	-1.856
Be	$\text{Be}^{2+} + 2e^-$	$\rightleftharpoons \text{Be}(s)$	-1.847
P	$\text{H}_2\text{PO}_2^- + e^-$	$\rightleftharpoons \text{P}(s) + 2\text{OH}^-$	-1.82
U	$\text{U}^{3+} + 3e^-$	$\rightleftharpoons \text{U}(s)$	-1.798
Sr	$\text{Sr}^{2+} + 2e^-$	$\rightleftharpoons \text{Sr}(\text{Hg})$	-1.793
B	$\text{H}_2\text{BO}_3^- + \text{H}_2\text{O} + 3e^-$	$\rightleftharpoons \text{B}(s) + 4\text{OH}^-$	-1.79
Th	$\text{ThO}_2 + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{Th}(s) + 2\text{H}_2\text{O}$	-1.789
Hf	$\text{HfO}^{2+} + 2\text{H}^+ + 4e^-$	$\rightleftharpoons \text{Hf}(s) + \text{H}_2\text{O}$	-1.724
P	$\text{HPO}_3^{2-} + 2\text{H}_2\text{O} + 3e^-$	$\rightleftharpoons \text{P}(s) + 5\text{OH}^-$	-1.71
Si	$\text{SiO}_3^{2-} + \text{H}_2\text{O} + 4e^-$	$\rightleftharpoons \text{Si}(s) + 6\text{OH}^-$	-1.697

Element	Half-reaction		E° (V)
	Oxidant	\rightleftharpoons Reductant	
Al	$\text{Al}^{3+} + 3e^-$	$\rightleftharpoons \text{Al}(s)$	-1.662
Ti	$\text{Ti}^{2+} + 2e^-$	$\rightleftharpoons \text{Ti}(s)$	-1.63
Zr	$\text{ZrO}_2(s) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{Zr}(s) + 2\text{H}_2\text{O}$	-1.553
Zr	$\text{Zr}^{4+} + 4e^-$	$\rightleftharpoons \text{Zr}(s)$	-1.45
Ti	$\text{Ti}^{3+} + 3e^-$	$\rightleftharpoons \text{Ti}(s)$	-1.37
Ti	$\text{TiO}(s) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{Ti}(s) + \text{H}_2\text{O}$	-1.31
Ti	$\text{Ti}_2\text{O}_3(s) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons 2\text{TiO}(s) + \text{H}_2\text{O}$	-1.23
Zn	$\text{Zn}(\text{OH})_4^{2-} + 2e^-$	$\rightleftharpoons \text{Zn}(s) + 4\text{OH}^-$	-1.199
Mn	$\text{Mn}^{2+} + 2e^-$	$\rightleftharpoons \text{Mn}(s)$	-1.185
Fe	$\text{Fe}(\text{CN})_6^{4-} + 6\text{H}^+ + 2e^-$	$\rightleftharpoons \text{Fe}(s) + 6\text{HCN}(aq)$	-1.16
Te	$\text{Te}(s) + 2e^-$	$\rightleftharpoons \text{Te}^{2-}$	-1.143
V	$\text{V}^{2+} + 2e^-$	$\rightleftharpoons \text{V}(s)$	-1.13
Nb	$\text{Nb}^{3+} + 3e^-$	$\rightleftharpoons \text{Nb}(s)$	-1.099
Sn	$\text{Sn}(s) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{SnH}_4(g)$	-1.07
Ti	$\text{TiO}^{2+} + 2\text{H}^+ + 4e^-$	$\rightleftharpoons \text{Ti}(s) + \text{H}_2\text{O}$	-0.93
Si	$\text{SiO}_2(s) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{Si}(s) + 2\text{H}_2\text{O}$	-0.91
B	$\text{B}(\text{OH})_3(aq) + 3\text{H}^+ + 3e^-$	$\rightleftharpoons \text{B}(s) + 3\text{H}_2\text{O}$	-0.89
Fe	$\text{Fe}(\text{OH})_2(s) + 2e^-$	$\rightleftharpoons \text{Fe}(s) + 2\text{OH}^-$	-0.89
Fe	$\text{Fe}_2\text{O}_3(s) + 3\text{H}_2\text{O} + 2e^-$	$\rightleftharpoons 2\text{Fe}(\text{OH})_2(s) + 2\text{OH}^-$	-0.86
H	$2\text{H}_2\text{O} + 2e^-$	$\rightleftharpoons \text{H}_2(g) + 2\text{OH}^-$	-0.8277
Bi	$\text{Bi}(s) + 3\text{H}^+ + 3e^-$	$\rightleftharpoons \text{BiH}_3$	-0.8
Zn	$\text{Zn}^{2+} + 2e^-$	$\rightleftharpoons \text{Zn}(Hg)$	-0.7628
Zn	$\text{Zn}^{2+} + 2e^-$	$\rightleftharpoons \text{Zn}(s)$	-0.7618
Ta	$\text{Ta}_2\text{O}_5(s) + 10\text{H}^+ + 10e^-$	$\rightleftharpoons 2\text{Ta}(s) + 5\text{H}_2\text{O}$	-0.75
Cr	$\text{Cr}^{3+} + 3e^-$	$\rightleftharpoons \text{Cr}(s)$	-0.74
Ni	$\text{Ni}(\text{OH})_2(s) + 2e^-$	$\rightleftharpoons \text{Ni}(s) + 2\text{OH}^-$	-0.72 [1]
Ag	$\text{Ag}_2\text{S}(s) + 2e^-$	$\rightleftharpoons 2\text{Ag}(s) + \text{S}^{2-}(aq)$	-0.69
Au	$[\text{Au}(\text{CN})_2]^- + e^-$	$\rightleftharpoons \text{Au}(s) + 2\text{CN}^-$	-0.60
Ta	$\text{Ta}^{3+} + 3e^-$	$\rightleftharpoons \text{Ta}(s)$	-0.6
Pb	$\text{PbO}(s) + \text{H}_2\text{O} + 2e^-$	$\rightleftharpoons \text{Pb}(s) + 2\text{OH}^-$	-0.58
Ti	$2\text{TiO}_2(s) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{Ti}_2\text{O}_3(s) + \text{H}_2\text{O}$	-0.56
Ga	$\text{Ga}^{3+} + 3e^-$	$\rightleftharpoons \text{Ga}(s)$	-0.53
U	$\text{U}^{4+} + e^-$	$\rightleftharpoons \text{U}^{3+}$	-0.52
P	$\text{H}_3\text{PO}_2(aq) + \text{H}^+ + e^-$	$\rightleftharpoons \text{P}(\text{white})$ ^[note 1] + $2\text{H}_2\text{O}$	-0.508
P	$\text{H}_3\text{PO}_3(aq) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{H}_3\text{PO}_2(aq) + \text{H}_2\text{O}$	-0.499
Ni	$\text{NiO}_2(s) + 2\text{H}_2\text{O} + 2e^-$	$\rightleftharpoons \text{Ni}(\text{OH})_2(s) + 2\text{OH}^-$	-0.49 [1]
P	$\text{H}_3\text{PO}_3(aq) + 3\text{H}^+ + 3e^-$	$\rightleftharpoons \text{P}(\text{red})$ ^[note 1] + $3\text{H}_2\text{O}$	-0.454
Cu	$\text{Cu}(\text{CN})_2^- + e^-$	$\rightleftharpoons \text{Cu}(s) + 2\text{CN}^-$	-0.44 [10]
Fe	$\text{Fe}^{2+} + 2e^-$	$\rightleftharpoons \text{Fe}(s)$	-0.44
C	$2\text{CO}_2(g) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{HOOC-COOH}(aq)$	-0.43
Cr	$\text{Cr}^{3+} + e^-$	$\rightleftharpoons \text{Cr}^{2+}$	-0.42
Cd	$\text{Cd}^{2+} + 2e^-$	$\rightleftharpoons \text{Cd}(s)$	-0.40
Ge	$\text{GeO}_2(s) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{GeO}(s) + \text{H}_2\text{O}$	-0.37

Element	Half-reaction		E° (V)
	Oxidant	\rightleftharpoons Reductant	
Cu	$\text{Cu}_2\text{O}(s) + \text{H}_2\text{O} + 2e^-$	$\rightleftharpoons 2\text{Cu}(s) + 2\text{OH}^-$	-0.360
Pb	$\text{PbSO}_4(s) + 2e^-$	$\rightleftharpoons \text{Pb}(s) + \text{SO}_4^{2-}$	-0.3588
Pb	$\text{PbSO}_4(s) + 2e^-$	$\rightleftharpoons \text{Pb}(Hg) + \text{SO}_4^{2-}$	-0.3505
Eu	$\text{Eu}^{3+} + e^-$	$\rightleftharpoons \text{Eu}^{2+}$	-0.35
In	$\text{In}^{3+} + 3e^-$	$\rightleftharpoons \text{In}(s)$	-0.34
Tl	$\text{Tl}^+ + e^-$	$\rightleftharpoons \text{Tl}(s)$	-0.34
Ge	$\text{Ge}(s) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{GeH}_4(g)$	-0.29
Co	$\text{Co}^{2+} + 2e^-$	$\rightleftharpoons \text{Co}(s)$	-0.28
P	$\text{H}_3\text{PO}_4(aq) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{H}_3\text{PO}_3(aq) + \text{H}_2\text{O}$	-0.276
V	$\text{V}^{3+} + e^-$	$\rightleftharpoons \text{V}^{2+}$	-0.26
Ni	$\text{Ni}^{2+} + 2e^-$	$\rightleftharpoons \text{Ni}(s)$	-0.25
As	$\text{As}(s) + 3\text{H}^+ + 3e^-$	$\rightleftharpoons \text{AsH}_3(g)$	-0.23
Ag	$\text{AgI}(s) + e^-$	$\rightleftharpoons \text{Ag}(s) + \text{I}^-$	-0.15224
Mo	$\text{MoO}_2(s) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{Mo}(s) + 2\text{H}_2\text{O}$	-0.15
Si	$\text{Si}(s) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{SiH}_4(g)$	-0.14
Sn	$\text{Sn}^{2+} + 2e^-$	$\rightleftharpoons \text{Sn}(s)$	-0.13
O	$\text{O}_2(g) + \text{H}^+ + e^-$	$\rightleftharpoons \text{HO}_2^{\cdot}(aq)$	-0.13
Pb	$\text{Pb}^{2+} + 2e^-$	$\rightleftharpoons \text{Pb}(s)$	-0.126
W	$\text{WO}_2(s) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{W}(s) + 2\text{H}_2\text{O}$	-0.12
P	$\text{P}(red) + 3\text{H}^+ + 3e^-$	$\rightleftharpoons \text{PH}_3(g)$	-0.111
C	$\text{CO}_2(g) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{HCOOH}(aq)$	-0.11
Se	$\text{Se}(s) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{H}_2\text{Se}(g)$	-0.11
C	$\text{CO}_2(g) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{CO}(g) + \text{H}_2\text{O}$	-0.11
Cu	$\text{Cu}(\text{NH}_3)_2^+ + e^-$	$\rightleftharpoons \text{Cu}(s) + 2\text{NH}_3(aq)$	-0.10 [10]
Sn	$\text{SnO}(s) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{Sn}(s) + \text{H}_2\text{O}$	-0.10
Sn	$\text{SnO}_2(s) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{SnO}(s) + \text{H}_2\text{O}$	-0.09
W	$\text{WO}_3(aq) + 6\text{H}^+ + 6e^-$	$\rightleftharpoons \text{W}(s) + 3\text{H}_2\text{O}$	-0.09
Fe	$\text{Fe}_3\text{O}_4(s) + 8\text{H}^+ + 8e^-$	$\rightleftharpoons 3\text{Fe}(s) + 4\text{H}_2\text{O}$	-0.085
P	$\text{P}(white) + 3\text{H}^+ + 3e^-$	$\rightleftharpoons \text{PH}_3(g)$	-0.063
Fe	$\text{Fe}^{3+} + 3e^-$	$\rightleftharpoons \text{Fe}(s)$	-0.04
C	$\text{HCOOH}(aq) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{HCHO}(aq) + \text{H}_2\text{O}$	-0.03
H	$2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{H}_2(g)$	0.0000
Ag	$\text{AgBr}(s) + e^-$	$\rightleftharpoons \text{Ag}(s) + \text{Br}^-$	+0.07133
S	$\text{S}_4\text{O}_6^{2-} + 2e^-$	$\rightleftharpoons 2\text{S}_2\text{O}_3^{2-}$	+0.08
N	$\text{N}_2(g) + 2\text{H}_2\text{O} + 6\text{H}^+ + 6e^-$	$\rightleftharpoons 2\text{NH}_4\text{OH}(aq)$	+0.092
Hg	$\text{HgO}(s) + \text{H}_2\text{O} + 2e^-$	$\rightleftharpoons \text{Hg}(l) + 2\text{OH}^-$	+0.0977
Cu	$\text{Cu}(\text{NH}_3)_4^{2+} + e^-$	$\rightleftharpoons \text{Cu}(\text{NH}_3)_2^+ + 2\text{NH}_3(aq)$	+0.10
Ru	$\text{Ru}(\text{NH}_3)_6^{3+} + e^-$	$\rightleftharpoons \text{Ru}(\text{NH}_3)_6^{2+}$	+0.10
N	$\text{N}_2\text{H}_4(aq) + 4\text{H}_2\text{O} + 2e^-$	$\rightleftharpoons 2\text{NH}_4^+ + 4\text{OH}^-$	+0.11
Mo	$\text{H}_2\text{MoO}_4(aq) + 6\text{H}^+ + 6e^-$	$\rightleftharpoons \text{Mo}(s) + 4\text{H}_2\text{O}$	+0.11
Ge	$\text{Ge}^{4+} + 4e^-$	$\rightleftharpoons \text{Ge}(s)$	+0.12
C	$\text{C}(s) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{CH}_4(g)$	+0.13
C	$\text{HCHO}(aq) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{CH}_3\text{OH}(aq)$	+0.13
S	$\text{S}(s) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{H}_2\text{S}(g)$	+0.14

Element	Half-reaction		E° (V)
	Oxidant	\rightleftharpoons Reductant	
Sn	$\text{Sn}^{4+} + 2e^-$	$\rightleftharpoons \text{Sn}^{2+}$	+0.15
Cu	$\text{Cu}^{2+} + e^-$	$\rightleftharpoons \text{Cu}^+$	+0.159
S	$\text{HSO}_4^- + 3\text{H}^+ + 2e^-$	$\rightleftharpoons \text{SO}_2(\text{aq}) + 2\text{H}_2\text{O}$	+0.16
U	$\text{UO}_2^{2+} + e^-$	$\rightleftharpoons \text{UO}_2^+$	+0.163
S	$\text{SO}_4^{2-} + 4\text{H}^+ + 2e^-$	$\rightleftharpoons \text{SO}_2(\text{aq}) + 2\text{H}_2\text{O}$	+0.17
Ti	$\text{TiO}^{2+} + 2\text{H}^+ + e^-$	$\rightleftharpoons \text{Ti}^{3+} + \text{H}_2\text{O}$	+0.19
Sb	$\text{SbO}^+ + 2\text{H}^+ + 3e^-$	$\rightleftharpoons \text{Sb}(\text{s}) + \text{H}_2\text{O}$	+0.20
Fe	$3\text{Fe}_2\text{O}_3(\text{s}) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons 2\text{Fe}_3\text{O}_4(\text{s}) + \text{H}_2\text{O}$	+0.22
Ag	$\text{AgCl}(\text{s}) + e^-$	$\rightleftharpoons \text{Ag}(\text{s}) + \text{Cl}^-$	+0.22233
As	$\text{H}_3\text{AsO}_3(\text{aq}) + 3\text{H}^+ + 3e^-$	$\rightleftharpoons \text{As}(\text{s}) + 3\text{H}_2\text{O}$	+0.24
Ge	$\text{GeO}(\text{s}) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{Ge}(\text{s}) + \text{H}_2\text{O}$	+0.26
U	$\text{UO}_2^+ + 4\text{H}^+ + e^-$	$\rightleftharpoons \text{U}^{4+} + 2\text{H}_2\text{O}$	+0.273
Re	$\text{Re}^{3+} + 3e^-$	$\rightleftharpoons \text{Re}(\text{s})$	+0.300
Bi	$\text{Bi}^{3+} + 3e^-$	$\rightleftharpoons \text{Bi}(\text{s})$	+0.308
Cu	$\text{Cu}^{2+} + 2e^-$	$\rightleftharpoons \text{Cu}(\text{s})$	+0.337
V	$[\text{VO}]^{2+} + 2\text{H}^+ + e^-$	$\rightleftharpoons \text{V}^{3+} + \text{H}_2\text{O}$	+0.34
Fe	$[\text{Fe}(\text{CN})_6]^{3-} + e^-$	$\rightleftharpoons [\text{Fe}(\text{CN})_6]^{4-}$	+0.3704
Fe	$\text{Fc}^+ + e^-$	$\rightleftharpoons \text{Fc}(\text{s})$	+0.4
O	$\text{O}_2(\text{g}) + 2\text{H}_2\text{O} + 4e^-$	$\rightleftharpoons 4\text{OH}^-(\text{aq})$	+0.401
Mo	$\text{H}_2\text{MoO}_4 + 6\text{H}^+ + 3e^-$	$\rightleftharpoons \text{Mo}^{3+} + 4\text{H}_2\text{O}$	+0.43
C	$\text{CH}_3\text{OH}(\text{aq}) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{CH}_4(\text{g}) + \text{H}_2\text{O}$	+0.50
S	$\text{SO}_2(\text{aq}) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{S}(\text{s}) + 2\text{H}_2\text{O}$	+0.50
Cu	$\text{Cu}^+ + e^-$	$\rightleftharpoons \text{Cu}(\text{s})$	+0.520
C	$\text{CO}(\text{g}) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{C}(\text{s}) + \text{H}_2\text{O}$	+0.52
I	$\text{I}_3^- + 2e^-$	$\rightleftharpoons 3\text{I}^-$	+0.53
I	$\text{I}_2(\text{s}) + 2e^-$	$\rightleftharpoons 2\text{I}^-$	+0.54
Au	$[\text{AuI}_4]^- + 3e^-$	$\rightleftharpoons \text{Au}(\text{s}) + 4\text{I}^-$	+0.56
As	$\text{H}_3\text{AsO}_4(\text{aq}) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{H}_3\text{AsO}_3(\text{aq}) + \text{H}_2\text{O}$	+0.56
Au	$[\text{AuI}_2]^- + e^-$	$\rightleftharpoons \text{Au}(\text{s}) + 2\text{I}^-$	+0.58
Mn	$\text{MnO}_4^- + 2\text{H}_2\text{O} + 3e^-$	$\rightleftharpoons \text{MnO}_2(\text{s}) + 4\text{OH}^-$	+0.595
S	$\text{S}_2\text{O}_3^{2-} + 6\text{H}^+ + 4e^-$	$\rightleftharpoons 2\text{S}(\text{s}) + 3\text{H}_2\text{O}$	+0.60
Mo	$\text{H}_2\text{MoO}_4(\text{aq}) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{MoO}_2(\text{s}) + 2\text{H}_2\text{O}$	+0.65
C	 + 2H ⁺ + 2e ⁻	\rightleftharpoons 	+0.6992
O	$\text{O}_2(\text{g}) + 2\text{H}^+ + 2e^-$	$\rightleftharpoons \text{H}_2\text{O}_2(\text{aq})$	+0.70
Tl	$\text{Tl}^{3+} + 3e^-$	$\rightleftharpoons \text{Tl}(\text{s})$	+0.72
Pt	$\text{PtCl}_6^{2-} + 2e^-$	$\rightleftharpoons \text{PtCl}_4^{2-} + 2\text{Cl}^-$	+0.726
Fe	$\text{Fe}_2\text{O}_3(\text{s}) + 6\text{H}^+ + 2e^-$	$\rightleftharpoons 2\text{Fe}^{2+} + 3\text{H}_2\text{O}$	+0.728
Se	$\text{H}_2\text{SeO}_3(\text{aq}) + 4\text{H}^+ + 4e^-$	$\rightleftharpoons \text{Se}(\text{s}) + 3\text{H}_2\text{O}$	+0.74
Pt	$\text{PtCl}_4^{2-} + 2e^-$	$\rightleftharpoons \text{Pt}(\text{s}) + 4\text{Cl}^-$	+0.758
Fe	$\text{Fe}^{3+} + e^-$	$\rightleftharpoons \text{Fe}^{2+}$	+0.77
Ag	$\text{Ag}^+ + e^-$	$\rightleftharpoons \text{Ag}(\text{s})$	+0.7996
Hg	$\text{Hg}_2^{2+} + 2e^-$	$\rightleftharpoons 2\text{Hg}(\text{l})$	+0.80

Element	Half-reaction		E° (V)
	Oxidant	\rightleftharpoons Reductant	
N	$\text{NO}_3^-(\text{aq}) + 2 \text{H}^+ + \text{e}^-$	$\rightleftharpoons \text{NO}_2(\text{g}) + \text{H}_2\text{O}$	+0.80
Fe	$2 \text{FeO}_4^{2-} + 5 \text{H}_2\text{O} + 6 \text{e}^-$	$\rightleftharpoons \text{Fe}_2\text{O}_3(\text{s}) + 10 \text{OH}^-$	+0.81
Au	$[\text{AuBr}_4]^- + 3 \text{e}^-$	$\rightleftharpoons \text{Au}(\text{s}) + 4 \text{Br}^-$	+0.85
Hg	$\text{Hg}^{2+} + 2 \text{e}^-$	$\rightleftharpoons \text{Hg}(\text{l})$	+0.85
Ir	$[\text{IrCl}_6]^{2-} + \text{e}^-$	$\rightleftharpoons [\text{IrCl}_6]^{3-}$	+0.87
Mn	$\text{MnO}_4^- + \text{H}^+ + \text{e}^-$	$\rightleftharpoons \text{HMnO}_4^-$	+0.90
Hg	$2 \text{Hg}^{2+} + 2 \text{e}^-$	$\rightleftharpoons \text{Hg}_2^{2+}$	+0.91
Pd	$\text{Pd}^{2+} + 2 \text{e}^-$	$\rightleftharpoons \text{Pd}(\text{s})$	+0.915
Au	$[\text{AuCl}_4]^- + 3 \text{e}^-$	$\rightleftharpoons \text{Au}(\text{s}) + 4 \text{Cl}^-$	+0.93
Mn	$\text{MnO}_2(\text{s}) + 4 \text{H}^+ + \text{e}^-$	$\rightleftharpoons \text{Mn}^{3+} + 2 \text{H}_2\text{O}$	+0.95
N	$\text{NO}_3^-(\text{aq}) + 4 \text{H}^+ + 3 \text{e}^-$	$\rightleftharpoons \text{NO}(\text{g}) + 2 \text{H}_2\text{O}(\text{l})$	+0.958
Au	$[\text{AuBr}_2]^- + \text{e}^-$	$\rightleftharpoons \text{Au}(\text{s}) + 2 \text{Br}^-$	+0.96
Fe	$\text{Fe}_3\text{O}_4(\text{s}) + 8 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons 3 \text{Fe}^{2+} + 4 \text{H}_2\text{O}$	+0.98
Xe	$[\text{HXeO}_6]^{3-} + 2 \text{H}_2\text{O} + 2 \text{e}^-$	$\rightleftharpoons [\text{HXeO}_4]^- + 4 \text{OH}^-$	+0.99
V	$[\text{VO}_2]^+(\text{aq}) + 2 \text{H}^+ + \text{e}^-$	$\rightleftharpoons [\text{VO}]^{2+}(\text{aq}) + \text{H}_2\text{O}$	+1.0
Te	$\text{H}_6\text{TeO}_6(\text{aq}) + 2 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons \text{TeO}_2(\text{s}) + 4 \text{H}_2\text{O}$	+1.02
Br	$\text{Br}_2(\text{l}) + 2 \text{e}^-$	$\rightleftharpoons 2 \text{Br}^-$	+1.066
Br	$\text{Br}_2(\text{aq}) + 2 \text{e}^-$	$\rightleftharpoons 2 \text{Br}^-$	+1.0873
Cu	$\text{Cu}^{2+} + 2 \text{CN}^- + \text{e}^-$	$\rightleftharpoons \text{Cu}(\text{CN})_2^-$	+1.12 [10]
I	$\text{IO}_3^- + 5 \text{H}^+ + 4 \text{e}^-$	$\rightleftharpoons \text{HIO}(\text{aq}) + 2 \text{H}_2\text{O}$	+1.13
Au	$[\text{AuCl}_2]^- + \text{e}^-$	$\rightleftharpoons \text{Au}(\text{s}) + 2 \text{Cl}^-$	+1.15
Se	$\text{HSeO}_4^- + 3 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons \text{H}_2\text{SeO}_3(\text{aq}) + \text{H}_2\text{O}$	+1.15
Ag	$\text{Ag}_2\text{O}(\text{s}) + 2 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons 2 \text{Ag}(\text{s}) + \text{H}_2\text{O}$	+1.17
Cl	$\text{ClO}_3^- + 2 \text{H}^+ + \text{e}^-$	$\rightleftharpoons \text{ClO}_2(\text{g}) + \text{H}_2\text{O}$	+1.18
Xe	$[\text{HXeO}_6]^{3-} + 5 \text{H}_2\text{O} + 8 \text{e}^-$	$\rightleftharpoons \text{Xe}(\text{g}) + 11 \text{OH}^-$	+1.18
Pt	$\text{Pt}^{2+} + 2 \text{e}^-$	$\rightleftharpoons \text{Pt}(\text{s})$	+1.188
Cl	$\text{ClO}_2(\text{g}) + \text{H}^+ + \text{e}^-$	$\rightleftharpoons \text{HClO}_2(\text{aq})$	+1.19
I	$2 \text{IO}_3^- + 12 \text{H}^+ + 10 \text{e}^-$	$\rightleftharpoons \text{I}_2(\text{s}) + 6 \text{H}_2\text{O}$	+1.20
Cl	$\text{ClO}_4^- + 2 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons \text{ClO}_3^- + \text{H}_2\text{O}$	+1.20
Mn	$\text{MnO}_2(\text{s}) + 4 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons \text{Mn}^{2+} + 2 \text{H}_2\text{O}$	+1.224
O	$\text{O}_2(\text{g}) + 4 \text{H}^+ + 4 \text{e}^-$	$\rightleftharpoons 2 \text{H}_2\text{O}$	+1.229
Ru	$[\text{Ru}(\text{bipy})_3]^{3+} + \text{e}^-$	$\rightleftharpoons [\text{Ru}(\text{bipy})_3]^{2+}$	+1.24
Xe	$[\text{HXeO}_4]^- + 3 \text{H}_2\text{O} + 6 \text{e}^-$	$\rightleftharpoons \text{Xe}(\text{g}) + 7 \text{OH}^-$	+1.24
Tl	$\text{Tl}^{3+} + 2 \text{e}^-$	$\rightleftharpoons \text{Tl}^+$	+1.25
Cr	$\text{Cr}_2\text{O}_7^{2-} + 14 \text{H}^+ + 6 \text{e}^-$	$\rightleftharpoons 2 \text{Cr}^{3+} + 7 \text{H}_2\text{O}$	+1.33
Cl	$\text{Cl}_2(\text{g}) + 2 \text{e}^-$	$\rightleftharpoons 2 \text{Cl}^-$	+1.36
Co	$\text{CoO}_2(\text{s}) + 4 \text{H}^+ + \text{e}^-$	$\rightleftharpoons \text{Co}^{3+} + 2 \text{H}_2\text{O}$	+1.42
N	$2 \text{NH}_3\text{OH}^+ + \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons \text{N}_2\text{H}_5^+ + 2 \text{H}_2\text{O}$	+1.42
I	$2 \text{HIO}(\text{aq}) + 2 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons \text{I}_2(\text{s}) + 2 \text{H}_2\text{O}$	+1.44
Br	$\text{BrO}_3^- + 5 \text{H}^+ + 4 \text{e}^-$	$\rightleftharpoons \text{HBrO}(\text{aq}) + 2 \text{H}_2\text{O}$	+1.45
Pb	$\beta\text{-PbO}_2(\text{s}) + 4 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons \text{Pb}^{2+} + 2 \text{H}_2\text{O}$	+1.460
Pb	$\alpha\text{-PbO}_2(\text{s}) + 4 \text{H}^+ + 2 \text{e}^-$	$\rightleftharpoons \text{Pb}^{2+} + 2 \text{H}_2\text{O}$	+1.468

Element	Half-reaction		E° (V)
	Oxidant	\rightleftharpoons Reductant	
Br	$2\text{BrO}_3^- + 12\text{H}^+ + 10\text{e}^-$	$\rightleftharpoons \text{Br}_2(l) + 6\text{H}_2\text{O}$	+1.48
Cl	$2\text{ClO}_3^- + 12\text{H}^+ + 10\text{e}^-$	$\rightleftharpoons \text{Cl}_2(g) + 6\text{H}_2\text{O}$	+1.49
Cl	$\text{HClO}(aq) + \text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{Cl}^-(aq) + \text{H}_2\text{O}$	+1.49
Mn	$\text{MnO}_4^- + 8\text{H}^+ + 5\text{e}^-$	$\rightleftharpoons \text{Mn}^{2+} + 4\text{H}_2\text{O}$	+1.51
O	$\text{HO}_2^\bullet + \text{H}^+ + \text{e}^-$	$\rightleftharpoons \text{H}_2\text{O}_2(aq)$	+1.51
Au	$\text{Au}^{3+} + 3\text{e}^-$	$\rightleftharpoons \text{Au}(s)$	+1.52
Ni	$\text{NiO}_2(s) + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{Ni}^{2+} + 2\text{OH}^-$	+1.59
Ce	$\text{Ce}^{4+} + \text{e}^-$	$\rightleftharpoons \text{Ce}^{3+}$	+1.61
Cl	$2\text{HClO}(aq) + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{Cl}_2(g) + 2\text{H}_2\text{O}$	+1.63
Ag	$\text{Ag}_2\text{O}_3(s) + 6\text{H}^+ + 4\text{e}^-$	$\rightleftharpoons 2\text{Ag}^+ + 3\text{H}_2\text{O}$	+1.67
Cl	$\text{HClO}_2(aq) + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{HClO}(aq) + \text{H}_2\text{O}$	+1.67
Pb	$\text{Pb}^{4+} + 2\text{e}^-$	$\rightleftharpoons \text{Pb}^{2+}$	+1.69
Mn	$\text{MnO}_4^- + 4\text{H}^+ + 3\text{e}^-$	$\rightleftharpoons \text{MnO}_2(s) + 2\text{H}_2\text{O}$	+1.70
Ag	$\text{AgO}(s) + 2\text{H}^+ + \text{e}^-$	$\rightleftharpoons \text{Ag}^+ + \text{H}_2\text{O}$	+1.77
O	$\text{H}_2\text{O}_2(aq) + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons 2\text{H}_2\text{O}$	+1.78
Co	$\text{Co}^{3+} + \text{e}^-$	$\rightleftharpoons \text{Co}^{2+}$	+1.82
Au	$\text{Au}^+ + \text{e}^-$	$\rightleftharpoons \text{Au}(s)$	+1.83
Br	$\text{BrO}_4^- + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{BrO}_3^- + \text{H}_2\text{O}$	+1.85
Ag	$\text{Ag}^{2+} + \text{e}^-$	$\rightleftharpoons \text{Ag}^+$	+1.98
O	$\text{S}_2\text{O}_8^{2-} + 2\text{e}^-$	$\rightleftharpoons 2\text{SO}_4^{2-}$	+2.010
O	$\text{O}_3(g) + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{O}_2(g) + \text{H}_2\text{O}$	+2.075
Mn	$\text{HMnO}_4^- + 3\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{MnO}_2(s) + 2\text{H}_2\text{O}$	+2.09
Xe	$\text{XeO}_3(aq) + 6\text{H}^+ + 6\text{e}^-$	$\rightleftharpoons \text{Xe}(g) + 3\text{H}_2\text{O}$	+2.12
Xe	$\text{H}_4\text{XeO}_6(aq) + 8\text{H}^+ + 8\text{e}^-$	$\rightleftharpoons \text{Xe}(g) + 6\text{H}_2\text{O}$	+2.18
Fe	$\text{FeO}_4^{2-} + 8\text{H}^+ + 3\text{e}^-$	$\rightleftharpoons \text{Fe}^{3+} + 4\text{H}_2\text{O}$	+2.20
Xe	$\text{XeF}_2(aq) + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{Xe}(g) + 2\text{HF}(aq)$	+2.32
Xe	$\text{H}_4\text{XeO}_6(aq) + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons \text{XeO}_3(aq) + 3\text{H}_2\text{O}$	+2.42
F	$\text{F}_2(g) + 2\text{e}^-$	$\rightleftharpoons 2\text{F}^-$	+2.87
F	$\text{F}_2(g) + 2\text{H}^+ + 2\text{e}^-$	$\rightleftharpoons 2\text{HF}(aq)$	+3.05
Kr	$\text{KrF}_2(aq) + 2\text{e}^-$	$\rightleftharpoons \text{Kr}(g) + 2\text{F}^-(aq)$	+3.27

See also

- biochemically relevant redox potentials

1. Not specified in the indicated reference, but assumed due to the difference between the value -0.454 and that computed by $(2 \times (-0.499) + (-0.508))/3 = -0.502$, exactly matching the difference between the values for white (-0.063) and red (-0.111) phosphorus in equilibrium with PH_3 .

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General

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