

Table 1. Nernst's half- and inverse reactions	Standard potentials Data from [16-24]	Classic water disaccount 0 V	Thermodynamic. scale 0.10166 V	Absolute -0.3982 V
$\text{OH}^- = \text{HO} + \text{e}^-$	CRC	2.020	2.1217	1.7235
$4\text{H}_2\text{O} = \text{H}_2\text{O}_{2\text{aq}} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$	Suchotina	1.776	2.0837	1.6855
$\text{H}_2\text{O}_2 + 2\text{H}_2\text{O} = \text{O}_{2\text{aq}} + 2\text{H}_3\text{O}^+ + \text{e}^-$	David Harris	1.276	1.4811	1.0829
$6\text{H}_2\text{O} = \text{O}_{2\text{aq}} + 4\text{H}_3\text{O}^+ + 4\text{e}^-$	Suchotina	1.229	1.4850	1.0868
$\text{HNO}_2 + 4\text{H}_2\text{O} = \text{NO}_3^- + 3\text{H}_3\text{O}^+ + 2\text{e}^-$	University Alberta	0.928	1.2352	0.8370
$\text{NO}_2^- + 3\text{H}_2\text{O} = \text{NO}_3^- + 2\text{H}_3\text{O}^+ + 2\text{e}^-$	David Harris	0.835	1.0913	0.6931
<b>Hydroquinone</b> + $2\text{H}_2\text{O} = \text{p-quinone} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.699	0.9041	0.5059
$\text{H}_2\text{O}_{2\text{aq}} + 2\text{H}_2\text{O} = \text{O}_{2\text{aq}} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$	University Alberta	0.695	0.8477	0.4495
$\text{H}_2\text{O}_{2\text{aq}} + \text{H}_2\text{O} = \text{O}_{2\text{aq}} + \text{H}_3\text{O}^+ + \text{H}^-$	University Alberta	0.695	0.8477	0.4495
$\text{Fe}^{2+} = \text{Fe}^{3+} + \text{e}^-$	University Alberta	0.769	0.8707	0.4725
<b>Ubiquinol</b> + $2\text{H}_2\text{O} = \text{Ubiquinone} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.459	0.6638	0.2656
<b>Succinate</b> <sup>2-</sup> + $2\text{H}_2\text{O} = \text{Fumarate}^{2-} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.4447	0.6494	0.2512
<b>ButyrylCoA</b> + $2\text{H}_2\text{O} = \text{CrotonylCoA} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.399	0.6038	0.2056
<b>AscorbicAcid</b> + $2\text{H}_2\text{O} = \text{C}_6\text{H}_6\text{O}_6 + 2\text{H}_3\text{O}^+ + 2\text{e}^-$	DC.Harris	0.390	0.5947	0.1965
<b>glycolate</b> + $2\text{H}_2\text{O} = \text{Glyoxylate} + \text{H}^- + \text{H}_3\text{O}^+$	D.C.Harris	0.324	0.5287	0.1305
$\text{HO}_2^- + \text{H}_2\text{O} = \text{O}_{2\text{aq}} + \text{H}_3\text{O}^+ + 2\text{e}^-$	Aris Kaksis	-	-	0.07587
$\text{Fe}^{2+} = \text{Cytochrome F Fe}^{3+} + \text{e}^-$	David Harris	0.365	0.4667	0.0685
$[\text{Fe}^{\text{II}}(\text{CN})_6]^{4-} = [\text{Fe}^{\text{III}}(\text{CN})_6]^{3-} + \text{e}^-$	University Alberta	0.356	0.4574	0.0592
<b>Malate</b> <sup>2-</sup> + $2\text{H}_2\text{O} = \text{Oxalo-acetate}^{2-} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.248	0.4528	0.0546
$\text{Fe}^{2+} = \text{Cytochrome a3 Fe}^{3+} + \text{e}^-$		0.350	0.4517	0.0535
$\text{FADH}_2 + 2\text{H}_2\text{O} = \text{FADfree} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$ ;		0.195	0.3998	0.0016
<b>Lactate</b> <sup>-</sup> + $\text{H}_2\text{O} = \text{Pyruvate}^- + \text{H}_3\text{O}^+ + \text{H}^- (\text{H}^+ + 2\text{e}^-)$		0.229	0.3823	-0.0159
$\text{CH}_3\text{COO}^- + 2\text{H}_2\text{O} = \text{glycolate} + \text{H}^- + \text{H}_3\text{O}^+$ ; D.C.Harris		0.161	0.3652	-0.0330
$\text{C}_6\text{H}_{12}\text{O}_6 + 42\text{H}_2\text{O} = 24\text{H}_3\text{O}^+ + 6\text{H}_3\text{O}^+ + 6\text{HCO}_3^- + 24\text{e}^-$ ; Aris Kaksis		0.0701	0.2590	-0.1392
$\text{H}_2\text{S}_{\text{aq}} + 2\text{H}_2\text{O} = \text{S}_{\text{rhombic}} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$ ; CRC 2010		0.142	0.3467	-0.0515
$\text{CH}_3\text{CH}_2\text{OH} + \text{H}_2\text{O} = \text{CH}_3\text{CHO} + \text{H}_3\text{O}^+ + \text{H}^-$ ; KortlyShucha		0.190	0.3432	-0.0550
$\text{Fe}^{2+} = \text{Cytochrome a Fe}^{3+} + \text{e}^-$		0.2900	0.3917	-0.0065
$2\text{GlutathSH} + 2\text{H}_2\text{O} = \text{GlutaS-Sthione} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.1841	0.3888	-0.0094
$\text{Fe}^{2+} = \text{Cytochrome c Fe}^{3+} + \text{e}^-$		0.2540	0.3557	-0.0425
<b>LipSHSH</b> + $2\text{H}_2\text{O} = \text{LipoicAcidS-S} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.1241	0.3288	-0.0694
$\text{Fe}^{2+} = \text{Cytochrome c1 Fe}^{3+} + \text{e}^-$		0.2200	0.3217	-0.0765
$\beta\text{-OH Butyrate}^- + 2\text{H}_2\text{O} = \text{AcetoAcetate}^- + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.0681	0.2728	-0.1254
<b>isocitrate</b> <sup>2-</sup> + $2\text{H}_2\text{O} = \alpha\text{-Ketoglutarate}^{2-} + \text{CO}_2 + 2\text{H}_3\text{O}^+ + 2\text{e}^-$		0.0341	0.2388	-0.1594
Nernst's $\text{H}_{2\text{aq}} + 2\text{H}_2\text{O} = 2\text{H}_3\text{O}^+ + 2\text{e}^-$ ; $\Delta G_{\text{Hess\_H3O}^+} = -58.12$ kJ/mol			on graphite electrode oxidation	-0.3020
Inverse: $2\text{H}_3\text{O}^+ + 2\text{e}^- = \text{H}_{2\text{aq}} + 2\text{H}_2\text{O}$ ; $\Delta G_{\text{Hess\_H2aq}} = 58.12$ kJ/mol			on graphite electrode reduction	0.3020
$\text{H}_{2\text{aq}} = 2\text{H}(\text{Pt}) + \text{H}_2\text{O}$ ; $\Delta G_{\text{Alberty\_sp\_H(Pt)}} = 2G_{\text{H(Pt)}} + G_{\text{H}_2\text{O}} - (G_{\text{H}_{2\text{aq}}}) = -1.14$ kJ/mol			$K_{\text{sp\_H(Pt)}} = [\text{H}(\text{Pt})]^2 * [\text{H}_2\text{O}] / [\text{H}_{2\text{aq}}] = 1.584$	
$\text{H}(\text{Pt}) + \text{H}_2\text{O} = \text{H}_3\text{O}^+ + \text{e}^-$ ; $[\text{H}_3\text{O}^+] = 1$ M pH=0 classic zero		0;	0.10166	<b>-0.2965</b>
<b>Luciferin</b> + $\text{OH}^- = ?\text{luciferin} + \text{CO}_{2\text{aq}} + \text{OH}^- + 3\text{H} (3\text{H}^+ + 3\text{e}^-) + \text{e}^-$		0.0000	0.1017	-0.2965
$\text{Fe}^{2+} = \text{Cytochrome b Fe}^{3+} + \text{e}^-$		0.0770	0.1787	-0.2195
$\text{CH}_3\text{CHO} + 3\text{H}_2\text{O} = \text{CH}_3\text{COOH} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$	Suchotina	-0.1180	0.1382	-0.2600
<b>Glycaldeh3-P</b> <sup>2-</sup> + $\text{H}_2\text{O} + \text{HPO}_4^{2-} = 13\text{PGlycerate}^4 + \text{H}_3\text{O}^+ + \text{H}^-$ ;		-0.1314	0.0218	-0.3764
<b>NADPH</b> = $\text{NADP}^+ + \text{H}^-$ ;		-0.1170	-0.0153	-0.4135
<b>NADH</b> = $\text{NAD}^+ + \text{H}^-$ ; David Harris		-0.1130	-0.0113	-0.4095
$\text{O}_{2\text{aq}} = \text{O}_{2\text{aq}} + \text{e}^-$	Suchotina	-0.2450	-0.1433	-0.5415
<b>Ferredoxin</b> $\text{Fe}^{2+} = \text{Ferredoxin Fe}^{3+} + \text{e}^-$		-0.4320	-0.3303	-0.7285
$\text{C}_6\text{H}_{12}\text{O}_6 + 4\text{H}_2\text{O} = 2\text{C}_3\text{H}_4\text{O}_3 + 4\text{H}_3\text{O}^+ + 4\text{e}^-$	Stryer	-0.5427	-0.3380	-0.7362
$\text{S}^{2-} = \text{S}_{\text{rhombic}} + 2\text{e}^-$ ; CRC 2010		-0.4763	-0.3746	-0.7728
$\text{HS}^- + \text{OH}^- = \text{S}_{\text{rhombic}} + \text{H}_2\text{O} + 2\text{e}^-$ ; CRC 2010		-0.4780	-0.3248	-0.7230
$\text{H}(\text{Pt}) + \text{OH}^- = \text{H}_2\text{O} + \text{e}^-$	Suchotina	-0.8280	-0.6233	-1.0215
<b>Ubiquinol6</b> + $2\text{H}_2\text{O} = \text{Ubiquinone6} + 2\text{H}_3\text{O}^+ + 2\text{e}^-$	CRC 2012	-1.0500	-0.8453	-1.2435