

Appendix C

HALF-CELL POTENTIALS

	$E_{1/2}^{\circ}$ in V
1. $\text{O}_3(g) + 2 \text{H}^+(aq) + 2 e^- \rightleftharpoons \text{O}_2(g) + \text{H}_2\text{O}(l)$	2.08
2. $\text{Co}^{3+}(aq) + e^- \rightleftharpoons \text{Co}^{2+}(aq)$	1.92
3. $\text{Au}^+(aq) + e^- \rightleftharpoons \text{Au}(s)$	1.69
4. $\text{MnO}_4^-(aq) + 8 \text{H}^+(aq) + 5 e^- \rightleftharpoons \text{Mn}^{2+}(aq) + 4 \text{H}_2\text{O}(l)$	1.51
5. $\text{HClO}(aq) + \text{H}^+(aq) + 2 e^- \rightleftharpoons \text{Cl}^-(aq) + \text{H}_2\text{O}(l)$	1.48
6. $\text{ClO}_3^-(aq) + 6 \text{H}^+(aq) + 6 e^- \rightleftharpoons \text{Cl}^-(aq) + 3 \text{H}_2\text{O}(l)$	1.45
7. $\text{Au}^{3+}(aq) + 2 e^- \rightleftharpoons \text{Au}^+(aq)$	1.40
8. $\text{Cl}_2(g) + 2 e^- \rightleftharpoons 2 \text{Cl}^-(aq)$	1.36
9. $\text{HCrO}_4^-(aq) + 7 \text{H}^+(aq) + 3 e^- \rightleftharpoons \text{Cr}^{3+}(aq) + 4 \text{H}_2\text{O}(l)$	1.35
10. $2 \text{HNO}_2(aq) + 4 \text{H}^+(aq) + 4 e^- \rightleftharpoons \text{N}_2\text{O}(g) + 3 \text{H}_2\text{O}(l)$	1.30
11. $\text{O}_2(g) + 4 \text{H}^+(aq) + 4 e^- \rightleftharpoons 2 \text{H}_2\text{O}(l)$	1.23
12. $\text{MnO}_2(s) + 4 \text{H}^+(aq) + 2 e^- \rightleftharpoons \text{Mn}^{2+}(aq) + 2 \text{H}_2\text{O}(l)$	1.22
13. $\text{SeO}_4^{2-}(aq) + 4 \text{H}^+(aq) + 2 e^- \rightleftharpoons \text{H}_2\text{SeO}_3(aq) + \text{H}_2\text{O}(l)$	1.15
14. $\text{IO}_3^-(aq) + 6 \text{H}^+(aq) + 6 e^- \rightleftharpoons \text{I}^-(aq) + 3 \text{H}_2\text{O}(l)$	1.08
15. $\text{Br}_2(l) + 2 e^- \rightleftharpoons 2 \text{Br}^-(aq)$	1.07
16. $\text{NO}_3^-(aq) + 4 \text{H}^+(aq) + 3 e^- \rightleftharpoons \text{NO}(g) + 2 \text{H}_2\text{O}(l)$	0.96
17. $\text{Ag}^+(aq) + e^- \rightleftharpoons \text{Ag}(s)$	0.80
18. $\text{Fe}^{3+}(aq) + e^- \rightleftharpoons \text{Fe}^{2+}(aq)$	0.77
19. $\text{O}_2(g) + 2 \text{H}^+(aq) + 2 e^- \rightleftharpoons \text{H}_2\text{O}_2(aq)$	0.70
20. $\text{ClO}_3^-(aq) + 3 \text{H}_2\text{O}(l) + 6 e^- \rightleftharpoons \text{Cl}^-(aq) + 6 \text{OH}^-(aq)$	0.62
21. $\text{MnO}_4^-(aq) + 2 \text{H}_2\text{O}(l) + 3 e^- \rightleftharpoons \text{MnO}_2(s) + 4 \text{OH}^-(aq)$	0.60
22. $\text{I}_2(s) + 2 e^- \rightleftharpoons 2 \text{I}^-(aq)$	0.54
23. $\text{Cu}^+(aq) + e^- \rightleftharpoons \text{Cu}(s)$	0.52
24. $\text{O}_2(g) + 2 \text{H}_2\text{O}(l) + 4 e^- \rightleftharpoons 4 \text{OH}^-(aq)$	0.40
25. $\text{Cu}^{2+}(aq) + 2 e^- \rightleftharpoons \text{Cu}(s)$	0.34
26. $\text{ClO}_3^-(aq) + \text{H}_2\text{O}(l) + 2 e^- \rightleftharpoons \text{ClO}_2^-(aq) + 2 \text{OH}^-(aq)$	0.33
27. $\text{AgCl}(s) + e^- \rightleftharpoons \text{Ag}(s) + \text{Cl}^-(aq)$	0.22
28. $\text{Cu}^{2+}(aq) + e^- \rightleftharpoons \text{Cu}^+(aq)$	0.15
29. $\text{Sn}^{4+}(aq) + 2 e^- \rightleftharpoons \text{Sn}^{2+}(aq)$	0.15
30. $2 \text{H}^+(aq) + 2 e^- \rightleftharpoons \text{H}_2(g)$	0.00
31. $\text{Fe}^{3+}(aq) + 3 e^- \rightleftharpoons \text{Fe}(s)$	-0.04
32. $\text{SnO}_2(s) + 4 \text{H}^+(aq) + 2 e^- \rightleftharpoons \text{Sn}^{2+}(aq) + 2 \text{H}_2\text{O}(l)$	-0.09
33. $\text{Sn}^{2+}(aq) + 2 e^- \rightleftharpoons \text{Sn}(s)$	-0.14
34. $\text{Ni}^{2+}(aq) + 2 e^- \rightleftharpoons \text{Ni}(s)$	-0.26
35. $\text{Cr}^{3+}(aq) + e^- \rightleftharpoons \text{Cr}^{2+}(aq)$	-0.41
36. $\text{Fe}^{2+}(aq) + 2 e^- \rightleftharpoons \text{Fe}(s)$	-0.45
37. $\text{NO}_2^-(aq) + \text{H}_2\text{O}(l) + e^- \rightleftharpoons \text{NO}(g) + 2 \text{OH}^-(aq)$	-0.46
38. $\text{H}_3\text{PO}_3(aq) + 2 \text{H}^+(aq) + 2 e^- \rightleftharpoons \text{H}_3\text{PO}_2(aq) + \text{H}_2\text{O}(l)$	-0.50
39. $2 \text{SO}_3^{2-}(aq) + 3 \text{H}_2\text{O}(l) + 4 e^- \rightleftharpoons \text{S}_2\text{O}_3^{2-}(aq) + 6 \text{OH}^-(aq)$	-0.57
40. $\text{Cr}^{3+}(aq) + 3 e^- \rightleftharpoons \text{Cr}(s)$	-0.74
41. $\text{Zn}^{2+}(aq) + 2 e^- \rightleftharpoons \text{Zn}(s)$	-0.76
42. $\text{SO}_4^{2-}(aq) + \text{H}_2\text{O}(l) + 2 e^- \rightleftharpoons \text{SO}_3^{2-}(aq) + 2 \text{OH}^-(aq)$	-0.93
43. $\text{Al}^{3+}(aq) + 3 e^- \rightleftharpoons \text{Al}(s)$	-1.66
44. $\text{Al}(\text{OH})_4^-(aq) + 3 e^- \rightleftharpoons \text{Al}(s) + 4 \text{OH}^-(aq)$	-2.33
45. $\text{Mg}^{2+}(aq) + 2 e^- \rightleftharpoons \text{Mg}(s)$	-2.37