

Relative Strengths of OAS and RAs

	Oxidizing Agents	Reducing Agents	E° (V)
	$F_{2(g)} + 2e^-$	$2F_{(aq)}^-$	+2.87
	$PbO_{2(s)} + SO_{4(aq)}^{2-} + 4H_{(aq)}^+ + 2e^-$	$PbSO_{4(s)} + 2H_2O_{(l)}$	+1.69
	$MnO_{4(aq)}^- + 8H_{(aq)}^+ + 5e^-$	$Mn_{(aq)}^{2+} + 4H_2O_{(l)}$	+1.51
	$Au_{(aq)}^{3+} + 3e^-$	$Au_{(s)}$	+1.50
	$ClO_{4(aq)}^- + 8H_{(aq)}^+ + 8e^-$	$Cl_{(aq)}^- + 4H_2O_{(l)}$	+1.39
	$Cl_{2(g)} + 2e^-$	$2Cl_{(aq)}^-$	+1.36
	$2HNO_{2(aq)} + 4H_{(aq)}^+ + 4e^-$	$N_2O_{(g)} + 3H_2O_{(l)}$	+1.30
	$Cr_2O_{7(aq)}^{2-} + 14H_{(aq)}^+ + 6e^-$	$2Cr_{(aq)}^{3+} + 7H_2O_{(l)}$	+1.23
	$O_{2(g)} + 4H_{(aq)}^+ + 4e^-$	$2H_2O_{(l)}$	+1.23
	$MnO_{2(s)} + 4H_{(aq)}^+ + 2e^-$	$Mn_{(aq)}^{2+} + 2H_2O_{(l)}$	+1.22
	$2IO_{3(aq)}^- + 12H_{(aq)}^+ + 10e^-$	$I_{2(s)} + 6H_2O_{(l)}$	+1.20
	$Br_{2(l)} + 2e^-$	$2Br_{(aq)}^-$	+1.07
	$Hg_{(aq)}^{2+} + 2e^-$	$Hg_{(l)}$	+0.85
	$ClO_{(aq)}^- + H_2O_{(l)} + 2e^-$	$Cl_{(aq)}^- + 2OH_{(aq)}^-$	+0.84
	$Ag_{(aq)}^+ + e^-$	$Ag_{(s)}$	+0.80
	$NO_{3(aq)}^- + 2H_{(aq)}^+ + e^-$	$NO_{2(g)} + H_2O_{(l)}$	+0.80
	$Fe_{(aq)}^{3+} + e^-$	$Fe_{(aq)}^{2+}$	+0.77
	$O_{2(g)} + 2H_{(aq)}^+ + 2e^-$	$H_2O_{2(l)}$	+0.70
	$MnO_{4(aq)}^- + 2H_2O_{(l)} + 3e^-$	$MnO_{2(s)} + 4OH_{(aq)}^-$	+0.60
	$I_{2(s)} + 2e^-$	$2I_{(aq)}^-$	+0.54
	$Cu_{(aq)}^+ + e^-$	$Cu_{(s)}$	+0.52
	$O_{2(g)} + 2H_2O_{(l)} + 4e^-$	$4OH_{(aq)}^-$	+0.40
	$Cu_{(aq)}^{2+} + 2e^-$	$Cu_{(s)}$	+0.34
	$SO_{4(aq)}^{2-} + 4H_{(aq)}^+ + 2e^-$	$H_2SO_{3(aq)} + H_2O_{(l)}$	+0.17
	$Sn_{(aq)}^{4+} + 2e^-$	$Sn_{(aq)}^{2+}$	+0.15
	$Cu_{(aq)}^{2+} + e^-$	$Cu_{(aq)}^+$	+0.15
	$S_{(s)} + 2H_{(aq)}^+ + 2e^-$	$H_2S_{(aq)}$	+0.14
	$AgBr_{(s)} + e^-$	$Ag_{(s)} + Br_{(aq)}^-$	+0.07
	$2H_{(aq)}^+ + 2e^-$	$H_{2(g)}$	0.00
	$Pb_{(aq)}^{2+} + 2e^-$	$Pb_{(s)}$	-0.13
	$Sn_{(aq)}^{2+} + 2e^-$	$Sn_{(s)}$	-0.14
	$AgI_{(s)} + e^-$	$Ag_{(s)} + I_{(aq)}^-$	-0.15
	$Ni_{(aq)}^{2+} + 2e^-$	$Ni_{(s)}$	-0.26
	$Co_{(aq)}^{2+} + 2e^-$	$Co_{(s)}$	-0.28
	$H_3PO_{4(aq)} + 2H_{(l)}^+ + 2e^-$	$H_3PO_{3(aq)} + H_2O_{(l)}$	-0.28
	$PbSO_{4(s)} + 2e^-$	$Pb_{(s)} + SO_{4(aq)}^{2-}$	-0.36
	$Se_{(s)} + 2H_{(aq)}^+ + 2e^-$	$H_2Se_{(aq)}$	-0.40
	$Cd_{(aq)}^{2+} + 2e^-$	$Cd_{(s)}$	-0.40
	$Cr_{(aq)}^{3+} + e^-$	$Cr_{(aq)}^{2+}$	-0.41
	$Fe_{(aq)}^{2+} + 2e^-$	$Fe_{(s)}$	-0.44
	$Ag_2S_{(s)} + 2e^-$	$2Ag_{(s)} + S_{(aq)}^{2-}$	-0.69
	$Zn_{(aq)}^{2+} + 2e^-$	$Zn_{(s)}$	-0.76
	$Te_{(s)} + 2H_{(aq)}^+ + 2e^-$	$H_2Te_{(aq)}$	-0.79
	$2H_2O_{(l)} + 2e^-$	$H_2_{(g)} + 2OH_{(aq)}^-$	-0.83
	$Cr_{(aq)}^{2+} + 2e^-$	$Cr_{(s)}$	-0.91
	$SO_{4(aq)}^{2-} + H_2O_{(l)} + 2e^-$	$SO_{3(aq)}^{2-} + 2OH_{(aq)}^-$	-0.93
	$Al_{(aq)}^{3+} + 3e^-$	$Al_{(s)}$	-1.66
	$Mg_{(aq)}^{2+} + 2e^-$	$Mg_{(s)}$	-2.37
	$Na_{(aq)}^+ + e^-$	$Na_{(s)}$	-2.71
	$Ca_{(aq)}^{2+} + 2e^-$	$Ca_{(s)}$	-2.87
	$Ba_{(aq)}^{2+} + 2e^-$	$Ba_{(s)}$	-2.91
	$K_{(aq)}^+ + e^-$	$K_{(s)}$	-2.93
	$Li_{(aq)}^+ + e^-$	$Li_{(s)}$	-3.04

SOA
Strongest
Oxidizing
Agent

Decreasing Strength of Oxidizing Agents

Decreasing Strength of Reducing Agents

SRA
Strongest
Reducing
Agent

- All E° values are reduction potentials measured relative to the standard hydrogen electrode. E° values are measured using standard half-cells with both the oxidizing and reducing agents present at SATP using 1.0 mol/L solutions.
- Values in this table are taken from *The CRC Handbook of Chemistry and Physics*, 71st Edition.