

Oxidizing Agents and Reducing Agents

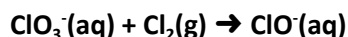
1. In the reaction $\text{Cu(s)} + 2\text{Ag}^+(\text{aq}) \rightarrow \text{Cu}^{2+}(\text{aq}) + 2\text{Ag(s)}$

a	Cu(s) is reduced by the oxidizing agent
b	$\text{Ag}^+(\text{aq})$ is the reducing agent and Cu(s) is reduced.
c	Cu(s) is the reducing agent and $\text{Ag}^+(\text{aq})$ is reduced
d	Cu(s) is the oxidizing agent and $\text{Ag}^+(\text{aq})$ is oxidized

2. The oxidizing agent in a redox equation _____ electrons and undergoes the process of _____.

a	loses electrons and is reduced
b	gains electrons and is reduced
c	loses electrons and is oxidized
d	gains electrons and is oxidized

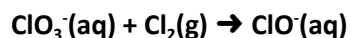
3. Aaron and Gerald are asked to balance the following reaction in an acidic solution.



They find that _____ is the reducing agent and it changes its oxidation number from ____ to _____.

a	$\text{ClO}_3^-(\text{aq})$	-5	-1
b	$\text{ClO}_3^-(\text{aq})$	+5	+1
c	$\text{Cl}_2(\text{g})$	0	+1
d	$\text{Cl}_2(\text{g})$	0	-1

4. Aaron and Gerald are asked to balance the following reaction in an acidic solution.



They find that _____ is the oxidizing agent and it changes its oxidation number from ____ to _____.

a	$\text{ClO}_3^-(\text{aq})$	-5	-1
b	$\text{ClO}_3^-(\text{aq})$	+5	+1
c	$\text{Cl}_2(\text{g})$	0	+1
d	$\text{Cl}_2(\text{g})$	0	-1

5. Silver compounds, such as $\text{AgNO}_3(\text{aq})$, can act as strong oxidizing agents because

a	silver metal can easily be oxidized to silver ions
b	silver metal can easily be reduced to silver ions
c	silver ions can easily be oxidized to silver metal
d	silver ions can easily be reduced to silver metal

6. An aluminum strip is placed into aqueous copper (II) nitrate. The oxidizing agent for the reaction that occurs is _____

a	$\text{Al}(\text{s})$
b	$\text{Al}^{3+}(\text{aq})$
c	$\text{Cu}(\text{s})$
d	$\text{Cu}^{2+}(\text{aq})$

7. The strongest reducing agent listed below is _____.

a	$\text{Fe}(\text{s})$
b	$\text{Cd}^{2+}(\text{aq})$
c	$\text{F}^{-}(\text{aq})$
d	$\text{I}_2(\text{s})$

8. The strongest oxidizing agent _____.

a	$\text{Br}_2(\text{l})$
b	$\text{Cl}_2(\text{g})$
c	$\text{Cl}^{-}(\text{aq})$
d	$\text{Br}^{-}(\text{aq})$

9. Consider the reaction given below.



A correct statement is for this reaction is _____

a	The reaction is spontaneous
b	The reaction involves a decrease in potential energy
c	$\text{Sn}^{2+}(\text{aq})$ undergoes disproportionation
d	$\text{Sn}(\text{s})$ is the oxidizing agent.

10. In the reaction $2\text{Ag}^+(\text{aq}) + \text{Cu}(\text{s}) \rightarrow 2\text{Ag}(\text{s}) + \text{Cu}^{2+}(\text{aq})$, the silver ion is _____ and is the _____ agent.

a	Oxidized	Reducing
b	Oxidized	Oxidizing
c	Reduced	Oxidizing
d	Reduced	reducing

11. Which oxidizing agent **cannot** be used to spontaneously oxidize $\text{Sn}^{2+}(\text{aq})$?

a	$\text{Fe}^{3+}(\text{aq})$
b	$\text{Fe}^{2+}(\text{aq})$
c	$\text{Cu}^{2+}(\text{aq})$
d	$\text{Br}_2(\text{l})$

Solutions:

1. C
2. B
3. C
4. B
5. D
6. D
7. A
8. B
9. C
10. C
11. B