

Oxidizing and Reducing Agents



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Identify the oxidized and reduced compounds.

Ag is reduced

Cu is oxidized

Since Ag is reduced, it causes the copper to lose electrons, therefore called the **OXIDIZING AGENT**

On the other hand, Cu is oxidized, therefore it caused the Ag to gain electrons, therefore called the **REDUCING AGENT**.

Oxidizing and Reducing Agents

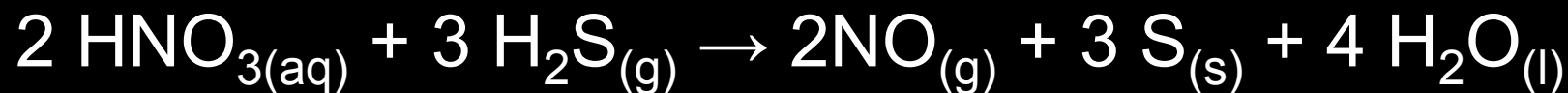
Identifying oxidizing reducing agent is the OPPOSITE of what is oxidized and reduced.

If something is oxidized, then it is the reducing AGENT

If something is reduced, then it is the OXIDIZING AGENT

Spotting the agents

1. Nitric acid reacts with hydrogen sulfide according to the balanced equation below.

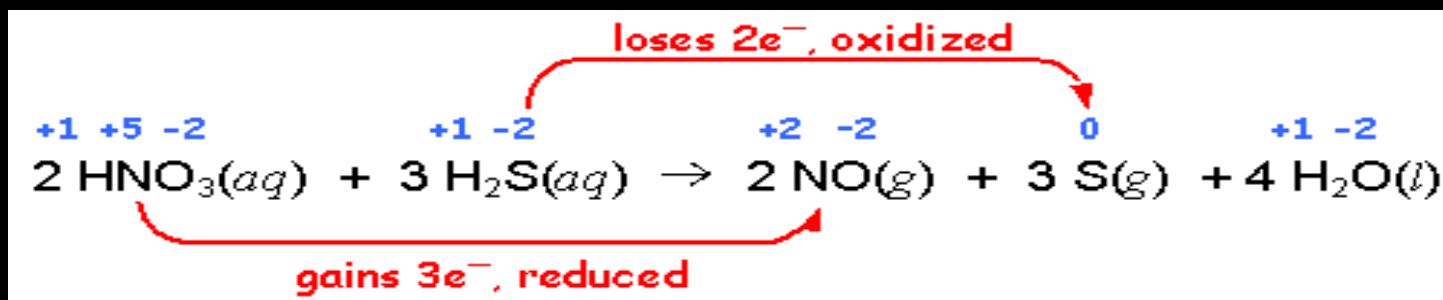


1. Find the oxidation numbers for each.

2. Identify what is oxidized and reduced

3. Identify what is the oxidizing and reducing agent

How to spot these agents?



S is oxidized, loses electrons.

N is reduced, gains electrons.

H_2S is the reducing agent.

HNO_3 is the oxidizing agent.

NOTE: The substance oxidized and the substance reduced are always individual elements. The oxidizing and reducing agents are the compounds that undergo the change.

Reduction and Oxidation

Oil Rig

Oxidation is loss

Reduction is gain

- look at the "charge" on each atom (oxidation number)
- Remember: electrons have a **NEGATIVE CHARGE**

Common oxidizing agents

Strong oxidizers mean they are agents that help oxidization or help others to lose electrons.

But they themselves are reduced, which means they can accept electrons readily.

Strong oxidizers are very reactive because they will take electrons from almost any substance in order to lower their oxidation number.

Their oxidation numbers are usually high +5, +6, +7 (Lacking electrons)

Ex. Chlorine in pools



Common reducing agents

Strong reducers – can give electrons easily.
Less important than oxidizers since they don't steal or take electrons away from others.
Less reactive

Chemistry Tutorials
Unit 8, Topic 2d

Redox Reactions
Demonstrations

Which of the following equations represents a redox reaction? For the redox reactions, identify

- element oxidized
- element reduced
- oxidizing agent
- reducing agent

