

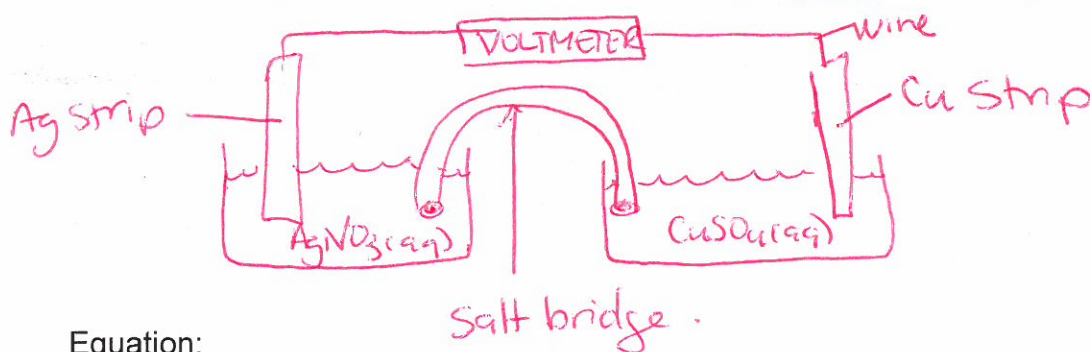
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Chemistry 12

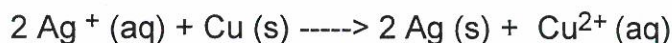
Electrochemistry Lesson #1 Read pages 189-192 and fill in the following

Electrochemistry is the branch of chemistry which is concerned with the conversion of chemical energy to electrical energy and vice versa.

Copy the illustration of the ELECTROCHEMICAL CELL pg 189, which is a system that PRODUCES ENERGY (electrical).



Equation:



The above reaction involves the loss and gain of electrons. The reaction has been split so that the Ag^+ is reacting in the left half of the electrochemical cell, while the copper is reacting in the right.

Each half is called a HALF-CELL and the reaction that occurs in a half-cell is called a HALF-CELL REACTION or a HALF-REACTION

IMPT: if the SALT BRIDGE is removed the reaction STOPS IMMEDIATELY!!!

OXIDATION- the half reaction in which a species loses electrons

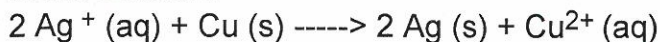
REDUCTION- the half reaction in which a species gains electrons.

Copy out the memory aid "LEO the Lion says GER"

"LEO" — Loss of Electrons = Oxidation
Gain of Electrons = Reduction

For every reduction reaction there must be a corresponding oxidation reaction, therefore it is called a Reduction-Oxidation reaction or a Redox reaction.

In the reaction:



Ag^+ is said to be the "agent" that causes Cu to become oxidized
 Ag^+ = oxidizing agent

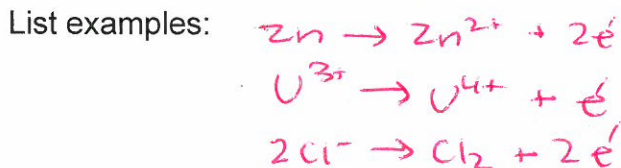
Cu is said to be the "agent" that causes Ag^+ to become reduced
Cu = reducing agent

IN OTHER WORDS

The oxidizing agent is REDUCED
The reducing agent is OXIDIZED

How to tell which species is being oxidized or reduced?

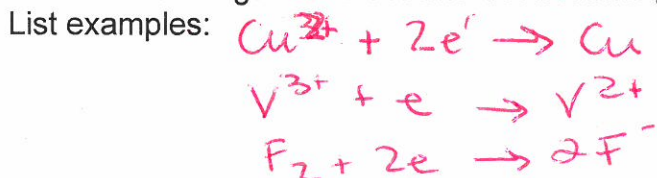
OXIDIZATION = loss of electrons OR becoming more POSITIVE :



Which situation gave rise to the use of the term "Oxidation"?

When metals gain oxygen atoms in a reaction

REDUCTION = gain of electrons OR becoming more NEGATIVE :



Example 1: In the equation $\text{Zn}^{2+} + \text{Mg} \rightarrow \text{Zn} + \text{Mg}^{2+}$
write out the two half-reactions:



What is happening to Mg? losing electrons = is being oxidized
What is happening to Zn? gaining electrons = is being reduced.

Mg is the reducing agent, while Zn is the oxidizing agent.

HOMEWORK: exercises 1 + 2 pg 192

PLO: S1