

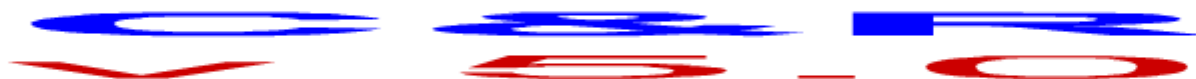
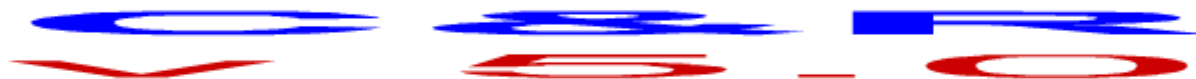
Oxidation Numbers





Rules for assigning oxidation numbers

The **oxidation number** or **oxidation state** of an atom in a compound is the charge that atom would have if the compound consisted only of separate ions. Click on a rule to see an example.



Figuring out oxidation numbers

Match the atoms to their oxidation states

Fe in Fe_2O_3

Cl_2

O^{2-}

S in H_2SO_4

P in PO_4^{3-}

C in CO_2

0

+3

-2

+6

+5

+4

S



Changes in oxidation number

Oxidation numbers can be used to define the processes of oxidation and reduction.

During **oxidation**, the oxidation number **increases**:



oxidation
number

0 \Rightarrow +1

During **reduction**, the oxidation number **decreases**:



oxidation
number

+3 \Rightarrow +2



Oxidation numbers can be used in the names of compounds to indicate which oxidation state a particular element in the compound is in.

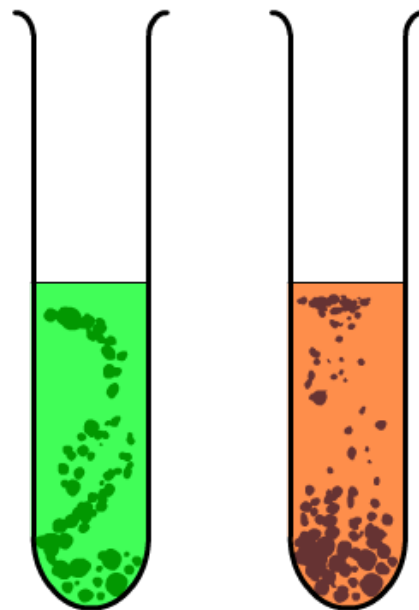
The oxidation state is usually put in parentheses in Roman numerals after the name of the element in question.

For example:

iron(II) hydroxide



**iron is in
oxidation state +2**



Fe²⁺

Fe³⁺

iron(III) hydroxide



**iron is in
oxidation state +3**

Calculate the oxidation states to answer the questions

Figuring out the change in oxidation state can tell you whether a particular element is oxidized or reduced in a reaction.

Click "**start**" to see if you can apply this idea.

start

