Assigning and Summing Oxidations

With Redox Reactions.

Once you have identified a reaction as a Redox (Oxidation – Reduction) you can assign oxidation using the following rules:

1. H is +1 with a non - metal and -1 with a metal.
2. Oxygen is usually -2, except with Peroxides.

Examples: O-O (O2)

Covalent molecule where both O’s are -1.

H2O2: H+1-O-1-O-1-H+1.

1. Halogens are usually -1, except when they with Oxygen or Hydrogen, then they are +1.

Example: Cl2O: Cl-O-Cl

+1 -2 +1

The sum of oxidations charges:

You can use the rules for assigning oxidation charges within a compound along with the sum of the oxidation charges to assign individual oxidation charges.

1st: you need to know that the sum of all of the oxidation charges in a compound is 0.

2nd: you also need to know that the sum of oxidation charges for polyatomic ions is equal to it’s net charge (SO4**-2**).

Figuring this out can be a bit difficult.

Example: H2SO4(Sulfuric Acid)

+1 ? -2

H: is +1 because it isn’t with a metal.

O: is -2 because it isn’t in a peroxide.

S: can be found by using the oxidations that we know and the fact that H2SO4’s over all charge is 0 (all compounds have an over all charge of 0).

2(+1) + 1 (?) + 4 (-2) = 0

(+2) + 1(?) + (-8) = 0

H’s S O’s

2 + ? + -8 = 0

S has an oxidation of + 6.