

Chemical Bonding

When atoms are stuck together to form compounds we call the forces holding the atoms together bonds.

There are two types of chemical bonds-

When the bonds are formed by the sharing of electrons we call the bond a covalent bond, and the grouping of atoms is called a molecule.

When the bonds are formed by the transfer of electrons we call the bond an ionic bond, and the grouping of atoms is called an ionic compound or a salt.

When an atom loses an electron it has a positive charge and is called a cation. -
Generally metals

When an atom gains electrons it has a negative charge and is called an anion. -
Generally non-metals

When chemistry was new there was no consistent way on naming compounds. This created no end of confusion, so a system of naming was adopted.

Ionic Nomenclature

Using a systematic way on naming reduces the amount of information we need to memorize, instead of memorizing a name for every compound we need only memorize the system.

Binary Ionic Compounds (Type I)- Consist of only two elements, cation and anion

1- The cation is always named first and the anion is named second.

2- A monatomic cation always takes its name from the element.

3- A monatomic anion is named by taking the root of the element name and adding the -ide suffix.

Binary Ionic Compound (Type II)

If the cation forms multiple charges then a roman numeral must be used to indicate the charge.

Polyatomic Ions- Ions that have more than one atom are called polyatomic ions and must be memorized.

Ex:

Covalent Nomenclature

In a molecule the ratio of different elements can not be determined from the charge.

We need to explicitly state how many of each type of element are in the molecule.

- 1- The first element in the formula is named as an element.
- 2- The second element is named as if it was an anion.
- 3- Prefixes are used to denote the numbers of each atom in the molecule.
- 4- The mono- prefix is never used for the first element.

Ex: