

Chemistry (Math Notes)

Module #5

Ionic Compounds

A more accurate definition of an ionic compound is a compound that carries ions, which are bound together because of opposite charges, like magnets.

Ionic Compounds can be formed in 4 ways.

- | | |
|---------------------------------------|--|
| 1. Metal + metal Non-metal | MgO magnesium oxide |
| 2. Polyatomic + Non-metal | NH ₄ F ammonium fluoride |
| 3. Metal + polyatomic | Mg(ClO ₃) ₂ magnesium chlorate |
| 4. Polyatomic + polyatomic | (NH ₄) ₂ SO ₄ ammonium sulfate |

EXAMPLES:

Covalent Compounds

There are 2 types.

A polar covalent compound has fractional ~~fractional~~ charges on some or all of its atoms because the electrons are shared unevenly between the atoms involved.

A purely covalent compound has no fractional charges on any of its atoms because the electrons are shared evenly between the atoms involved.

In order to be polar, a compound must have polar bonds AND these bonds cannot be of equal polarity and equal distribution in space.

The polarity of the bonds is determined by the difference in electronegativity of the atoms involved.

EXAMPLES:

Molecular Geometry

Molecules are not flat, but 3-D. Lewis Structures represent a flat ~~2-D~~ picture. A molecule's shape is defined by its electrons, which want to repel each other because they are the same charge. We use a dash(--) to represent the electrons.

* In general, polar covalent mix w/ other polar covalent OR ionic compounds.
Purely covalent mix only w/ other purely covalent compounds