PreIBSc 9 Notes Chem Unit - Spindlove

**IONIC COMPOUNDS – INTRO**

* Atoms gain or lose electrons to form **\_\_\_\_\_\_\_\_\_\_\_\_\_**
* An ionic compound forms when electrons on **metal** atoms **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** to a **non-metal** atoms, creating **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** charged ions

*Example*: table salt: **Na + Cl**

* When sodium and chlorine atoms come together, they are electrically **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* When they get close enough, an electron transfers from the sodium to the chlorine (recall that

sodium has an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** electron in its valence shell & chlorine is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** one)

* A picture containing text, writing implement

  Description automatically generatedThis makes a positive sodium ion, Na+, and a negative chlorine ion, Cl-.
* A picture containing text

  Description automatically generatedIonic compounds exist as a solid in the form of an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
  + A repeating pattern of positive and negative ions

Diagram, schematic

Description automatically generated**Drawing ionic compounds** *Example: Sodium chloride (NaCl)*

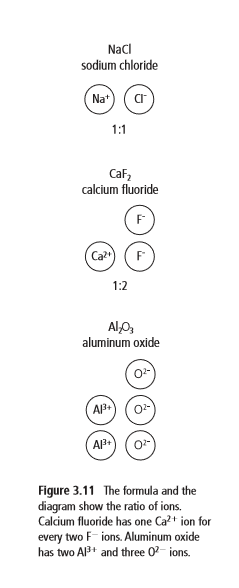
**Drawing ionic compounds** *Example: Magnesium fluoride (MgF2)*

**NAMING COMPOUNDS**

* A **chemical name** indicates the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** present in the compound
* The chem name of an ionic compound has **two** parts: one for each type of ion in it.
  + 1st part names the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ion (called the cation)**
    - The positive ion is always a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in a compound containing 2 elements
  + The 2nd part names the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ion (called the anion)**
    - The negative ion is always a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in a compound containing 2 elements
    - The non-metal ion’s name always ends with the suffix **\_\_\_\_\_\_\_\_\_\_**

*Examples*:

|  |  |
| --- | --- |
| * MgBr2 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Ag3N 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | * Sr3P2 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Na2O 🡪\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |



**CHEMICAL FORMULAS**

* Contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to identify each ion
* Shows the relative numbers of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the compound (ie. ratio)
  + shown as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the **right** of the element symbol
* In an ionic compound the positive charges \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the negative charges

**How to Write Chemical Formulas of Ionic Compounds**

* **Step 1**: Put **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of each element together.   
  Leave a *tiny* space between for any subscripts
* **Step 2**: Figure out **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** needed to balance the charges on the metal and non-metal (how many of each do you need?)
* **Step 3**: Include **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** to the right of each element. If there is “1”, do not include that.

***Note***: **NO** charges should appear in a compound. Compounds are **neutral**!!

*Example*: Zinc nitride *Example*: Magnesium chloride

Shortcut…

|  |  |  |  |
| --- | --- | --- | --- |
| Zinc nitride | Magnesium chloride | Calcium oxide | Tin oxide |