Formulae, Molecular Formulae and Empirical Formulae

Write the ionic formula for these ionic compounds

- Silver bromide
- Sodium carbonate
- Potassium oxide
- Chromium chloride
- Calcium hydroxide
- Aluminium nitrate
- Sodium sulfate
- Sodium phosphate
- Strontium selenide

M_r Relative Formula Mass

- A_r The relative atomic mass of an element is the average of the masses of the isotopes in a naturally occuring sample of the element relative to the mass of 1/12 of an atom of carbon 12.

- M_r (Relative Formula Mass) is the sum of the relative atomic masses of the individual atoms making up a molecule or ionic compound.

- **Now try Question 1 on handout 1**

Percentage by mass

- The percentage by mass of each element present in a compound can be calculated from the formula.

- [(Number of atoms x A_r) / M_r] x 100 = % by mass of an element

Example: H_2O: H 11.2% (3.s.f)

[(2 x 1.01) / 18.02] x 100

O 88.79% (4.s.f)

[(1 x 16.00) / 18.02] x 100

Now try question 2/3/4 on handout 1

Empirical and molecular formulas

- The **molecular formula** is the total number of atoms of each element present in a molecule of the compound
- For example C_2H_4 is the molecular formula of ethene.
- The **empirical formula** is the simplest whole number ratio of the elements present in a compound.
- What is the empirical formula of ethene?
- CH_2
- **Now try question 1 on handout 2**

- Try Questions 1 handout 2