

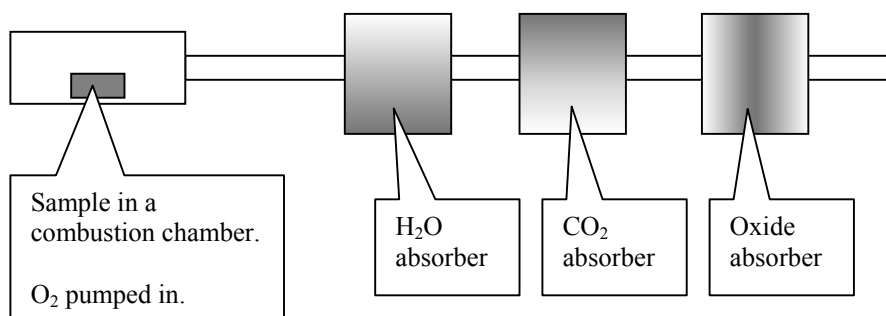
4.6 Empirical and Molecular Formulas

Definitions:

- Empirical formula
- Molecular formula

Empirical vs. Molecular Formulas

- Experimental determination can give us the percent composition that can be used to determine the ratio of elements in a compound.
- An empirical formula usually does not give the correct molecular formula but it does give the ratio of atoms or ions in a compound.
- It is measured experimentally using a combustion chamber.
 - All the hydrogen in the compound is converted to water and all the carbon is converted to carbon dioxide. While everything is oxidized.
 - After combusting the sample we carefully measure the amount of these products collected in the absorption material.



- We may find that the empirical formula is CH but it does not tell us the molecular formula. It only tells us that carbon and hydrogen are present in equal amounts. It could be acetylene (C₂H₂) or benzene (C₆H₆).
- A molecular formula is needed to tell u the actual number and kind of atoms in a compound.

Homework

- Practice: 1-6