Chemistry 2.1
Quantitative analysis

Titration

Titration

- **Titration** is one of the technique to accurately **determine the concentration** of an **unknown sample solution**.

- This is done by adding a solution with **known concentration (standard)** to react with the **unknown (sample)** and an **indicator** to indicate the reaction is complete.

Definitions

- **Standard solution** – is a solution has a known concentration. This is usually made by dissolving a known amount of solid in to a known volume.

- **Titre** – is the reading from the burette. This usually correspond to the **volume of the standard solution**

- **Indicator** – is a chemical that changes colour to indicate the end point

- **End point** – is when the indicator changes colour
- **Outlier** – is a titre that is not consistence with the others. In level 2 chemistry, consistency is ±0.2 mL

Titration equipment

Burette – to dispense liquid in a controlled manner. Burette is for standard solution

Pipette – to deliver a SET volume. Pipette is for sample solution

Conical flask – is the vessel where the titration takes place

Titration Steps

Refer to handouts (or downloads)

Titration calculations

1. Identify the concentration of the standard solution
2. Identify the volume of standard solution added **(the average titre)** *covert it to Litre*
3. Calculate the amount (mol) of standard added (concentration x volume = amount)
4. Identify the ratio between standard and sample
5. Calculate the amount of sample present
6. Identify the volume of the sample **(volume of the pipette)** *covert it to Litre*
7. Calculate the concentration of the sample (amount / volume)
8. Present your answer in 3s.f.