

Experiments

Preparation of Standard Solutions and Titration Procedure

A standard solution is a solution of accurately known concentration (made using a primary standard solute which is 100% pure, stable and soluble).

A primary standard solute is a pure compound with a high molecular mass, from which solutions of a known concentration can be made. It must be 100% pure, stable and soluble.

Preparation:

- Weigh the solute accurately
- Transfer the solute to a clean beaker and add a small volume of pure water (less than 100cm³)
- Rinse the clock glass using the wash bottle filled with pure water and add the rinsings to the beaker
- Stir the mixture until the solute is dissolved completely
- Rinse the stirring rod into the beaker using the wash bottle
- Using a funnel, transfer the solution from the beaker into the volumetric flask
- Rinse the beaker several times with the wash bottle and add all of the rinsings to the volumetric flask
- Rinse and remove the funnel
- Fill the volumetric flask with pure water to within 1cm of the calibration mark
- Add pure water dropwise until the bottom of the meniscus rests on the calibration mark when read at eye level
- Seal the flask and invert 20+ times to ensure a homogeneous solution

Sources of Error:

- Volumetric flask must be used as when filled to the calibration mark at the temperature stated on the flask it contains a specific known volume
- Analytical balance must be used to measure masses of solute as it is extremely accurate

- Ensure no solution is lost when the solid is being dissolved in a beaker or when the solution is transferred from the beaker to the volumetric flask by using a wash bottle to transfer all rinsings