WJEC (Wales) Chemistry A-level

SP 1.7a - Preparation of a Soluble Salt by Titration

Methods and images taken from the WJEC practical handbook

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Aim

To **prepare crystals** of sodium chloride by using **titration** followed by **evaporation.**

Apparatus and Chemicals

- 50 cm^3 burette
- Funnel
- 25 cm^3 pipette and filler
- 100 cm^3 conical flasks
- Evaporating basin
- 0.1 mol dm^{-3} NaOH solution
- 0.1 mol dm^{-3} HCl solution
- Phenolphthalein indicator

Safety Considerations

★ 0.1 mol dm^{-3} NaOH solution - irritant
★ 0.1 mol dm^{-3} HCl solution - irritant
★ Phenolphthalein indicator - flammable

Method

1. Using a **pipette**, measure 25.00 cm^3 of NaOH solution and pour it into a conical flask.
2. Add two drops of phenolphthalein.
3. Pour the HCl solution into a burette.
4. Record the initial volume of HCl solution.
5. Add the HCl from the burette into the conical flask a little at the time while **swirling** the conical flask.
6. When the phenolphthalein starts to turn from **pink to colourless**, add the HCl solution a drop at a time until one drop is sufficient to turn the solution colourless.
7. Record the volume of HCl solution needed.
8. Carry out the titration again using 25.00 cm^3 of NaOH solution and exactly the same volume of HCl solution.
9. **Do not add the indicator** this time.
10. Gently heat the solution from the conical flask in an **evaporating basin** until its volume decreases by around a half.
11. Leave the evaporating basin to **cool** allowing **crystals** to form.