

The test used to identify SO_4^{2-} ions

- White precipitate forms when barium chloride solution is added to a sulfate.
- $\text{SO}_4^{2-} + \text{Ba}^{2+} \rightarrow \text{BaSO}_4$

The preparations of a soluble salt from an insoluble base or carbonate

- $\text{CuO}_{(s)} + \text{H}_2\text{SO}_{4(aq)} \rightarrow \text{CuSO}_4 + \text{H}_2\text{O}_{(l)}$
- 1. excess base/carbonate to use up all acid
- 2. filtration to remove excess base/carbonate
- 3. evaporation of water to form crystals
- Small crystals can be formed quickly by heating to evaporate until about 1/3 of the solution remains and leaving to cool.
- Allowing the filtered solution to evaporate slowly over a period of days results in the formation of larger crystals.

The preparation of insoluble salts by precipitation reactions

- involves two soluble salts reacting together
- The precipitate can be filtered, washed with water on the filter paper and then dried in an oven.
- The silver halides and barium sulfate are insoluble.

Titration

- a method to prepare solutions of soluble salts and to determine relative and actual concentrations of solutions of acids/alkalis
- 1. indicator and fixed volume of acid/alkali in flask
- 2. exact volume of acid/alkali needed for neutralisation measured and recorded
- 3. same fixed volume of acid/alkali in clean flask and exact volume of alkali/acid needed for neutralisation added but with no indicator
- 4. evaporation of water to form crystals

Concentration

- $\text{concentration (M or mol/dm}^3) = \frac{\text{mass (g)}}{\text{molar mass (Ar or Mr)}} \times \frac{1000}{\text{volume (cm}^3)}$

Moles

- $\text{number of moles} = \frac{\text{mass (g)}}{\text{molar mass (Ar or Mr)}}$