

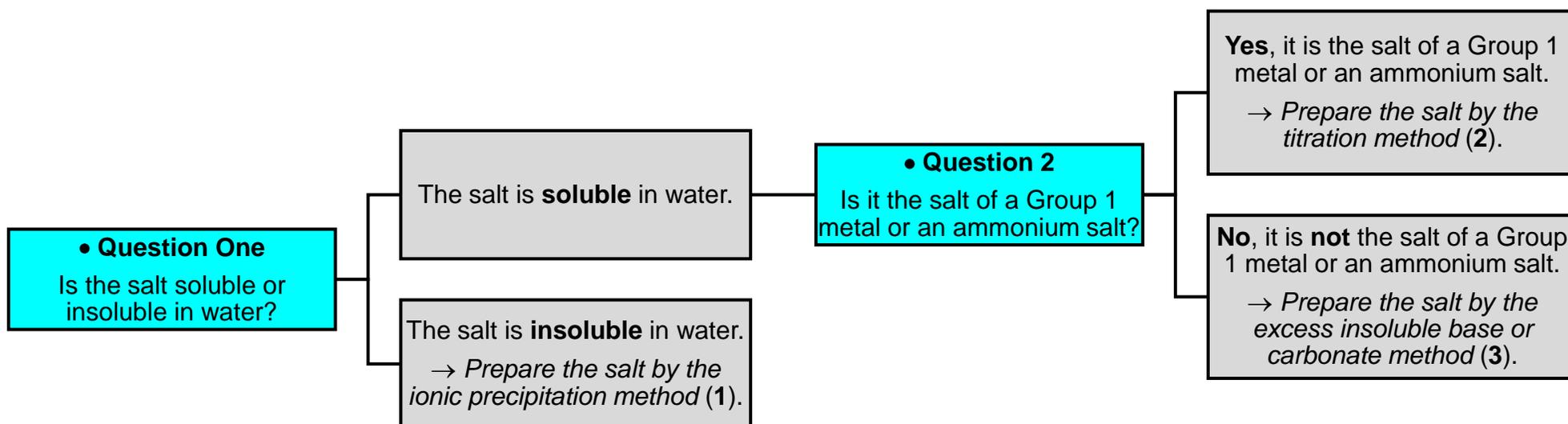
Chem!stry

Name: ()

Class:

Date: / /

Flow Diagram for Salt Preparation



- 1. Ionic Precipitation Method:** To make the **insoluble** salt **MX**, add an aqueous solution of **M** nitrate (containing the required cation **M**) to an aqueous solution of sodium **X** (containing the required anion **X**). Note: the nitrate of **M** and the sodium salt of **X** will both be soluble in water because all nitrates and all sodium salts are soluble. Separate the precipitate of **MX** from the solution by filtration. The insoluble salt **MX** will be the residue. Wash the residue with cold distilled water and dry the salt by pressing between layers of filter paper. *Example:* $\text{Ba}(\text{NO}_3)_2(\text{aq}) + \text{Na}_2\text{SO}_4(\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{NaNO}_3(\text{aq})$
- 2. Titration Method:** To make the **soluble** salt **MX**, titrate a solution of acid **HX** (containing the required anion **X**) against a solution of alkali **MOH** (containing the required cation **M**) using an indicator. Note the volumes of acid and alkali that are required and then combine these exact volumes together again, **without** the indicator. Heat the salt solution until it becomes saturated and then leave to crystallise. *Example:* $2\text{KOH}(\text{aq}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{K}_2\text{SO}_4(\text{aq}) + 2\text{H}_2\text{O}(\text{l})$
- 3. Excess Insoluble Base or Carbonate Method:** To make the **soluble** salt **MX**, add excess of an insoluble base **MO** or carbonate **MCO₃** (containing the required cation **M**) to a solution of acid **HX** (containing the required anion **X**) while heating and continuously stirring the mixture. Adding an excess of the insoluble base ensures that all of the acid has reacted. Separate the excess insoluble base or carbonate from the resulting salt solution by filtration. The desired salt will be the filtrate. Heat the filtrate until it becomes saturated and then leave to crystallise. *Example:* $\text{CuO}(\text{s}) + \text{H}_2\text{SO}_4(\text{aq}) \rightarrow \text{CuSO}_4(\text{aq}) + \text{H}_2\text{O}(\text{l})$