

Chap 9: Salts

No.

Date

Salts are ionic compounds containing a cation and an anion, formed when the hydrogen ions of an acid are partially or wholly replaced by metal cations or ammonium cations.

Acid + Reactive Metal $\rightarrow$ Salt + Hydrogen

Acid + Metal carbonate $\rightarrow$ Salt + Water + Carbon dioxide

Acid + Base/Alkali $\rightarrow$ Salt + Water

Excess method:

1. Fill half a beaker with acid and stir while adding metal powder until no more effervescence is observed.
2. Filter the mixture to obtain a neutral solution.
3. Heat the solution until saturated and leave to cool.
4. Filter to collect crystals, wash the crystals with cold distilled water and dry the crystals between sheets of filter paper.

Titration method:

1. Pipette 25.0cm^3 of alkali solution into a conical flask.
2. Add (given amount) of acid from the burette.
3. Heat the solution until saturated.
4. Cool the mixture to form salt crystals.
5. Filter mixture to collect salt crystals.
6. Rinse crystals with cold deionized water.
7. Dry crystals between sheets of filter paper.

Precipitation method:

1. Add solution A to solution B in a beaker and stir thoroughly until a white precipitate of salt forms.
2. Filter the mixture to obtain a residue of salt.
3. Rinse with cold distilled water to remove any impurities.
4. Dry the salt crystals by pressing it between filter paper.

- Excess method is to only be used to prepare salts that are soluble in water, except for sodium, potassium and ammonium salts.

only

- Titration is used to prepare a soluble salt by reacting acids with either alkalis or Group 1 carbonates.
- Precipitation is only used to prepare an insoluble salt by mixing two aqueous solutions.

★ Adding excess method should only be used for acid reactions, thus only metals, carbonates, oxides or hydroxides should be used.

★ Titration method is to only be used for acids & alkali reactions.

★ Precipitation can only be used to obtain the following salts:

→ Lead chloride

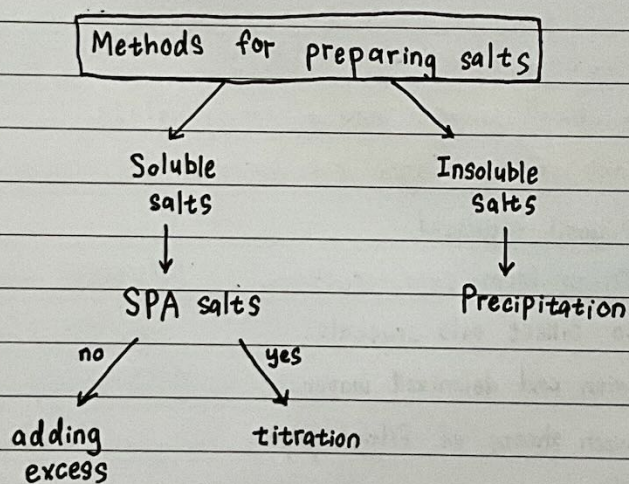
→ Silver chloride

→ Lead sulfate

→ Calcium sulfate

→ Barium sulfate

→ All carbonates except sodium, potassium and ammonium carbonates



* If adding excess is used for insoluble salts, the insoluble salt will form a layer around the ~~the~~ metal used, which will block the metal from coming into contact with the solution to form more salt, which will result in a low yield.