OCR A GCSE Chemistry

Topic 4: Predicting and identifying reactions and products

Identifying the products of chemical reactions

Notes

C4.2a describe tests to identify selected gases

- Carbon dioxide
    - bubble the gas through the limewater (carbon hydroxide) and it will turn milky (cloudy)
- Chlorine
    - When damp litmus paper is put into chlorine gas the litmus paper is bleached and turns white
- Hydrogen
    - Use a burning splint held at the open end of a test tube of the gas
        - Creates a 'squeaky pop' sound
- Oxygen
    - Uses a glowing splint inserted into a test tube of the gas
        - Splint relights in oxygen

C4.2b describe tests to identify aqueous cations and aqueous anions

ions	few drops NaOH	excess NaOH
calcium	White precipitate forms	No change
copper (II)	blue precipitate forms	no change
iron (II)	green precipitate forms	no change
iron (III)	orange-brown precipitate forms	no change
zinc	White precipitate forms	Precipitate re dissolves

- Carbonates
    - Carbonates react with dilute acids to create carbon dioxide.
    - This gas can be bubbled through limewater, if the limewater goes cloudy, the gas is CO_2.
- Halides
    - First add dilute nitric acid, followed by silver nitrate solution
    - Chloride gives a white precipitate
    - Bromide gives a cream precipitate
    - Iodide gives a yellow precipitate
- Sulfates
    - First add dilute hydrochloric acid, followed by barium chloride solution
    - A white precipitate will form when sulfate ions are in this solution

C4.2c describe how to perform a flame test

- Take a sample of the metal and hold on a spatula in a flame from a Bunsen burner and witness the colour that the flame turns dependent on the metal being tested

C4.2d identify species from test results
- use results from 4.2b and results from flame tests

C4.2e interpret flame tests to identify metal ions

Lithium	Crimson
Sodium	Yellow
Potassium	Lilac
Copper(II)	Green
Calcium	Orange-red

C4.2f describe the advantages of instrumental methods of analysis

- Elements and compounds can be detected and identified using instrumental methods of analysis
  - These are accurate, sensitive and rapid

C4.2g interpret an instrumental result given appropriate data in chart or tabular form, when accompanied by a reference set of data in the same form
- use above information to do so