



Edexcel IGCSE Chemistry

Topic 2: Inorganic chemistry

Chemical tests

Notes





2.44 describe tests for these gases: hydrogen, oxygen, carbon dioxide, ammonia, chlorine

- test for hydrogen:
 - Use a burning splint held at the open end of a test tube of the gas
 - Creates a 'squeaky pop' sound
- test for oxygen:
 - Uses a glowing splint inserted into a test tube of the gas
 - Splint relights in oxygen
- test for carbon dioxide:
 - Bubble the gas through the limewater (calcium hydroxide) and it will turn milky (cloudy)
- test for ammonia:
 - Makes damp red litmus paper turn blue
 - Forms a white smoke of ammonium chloride when hydrogen chloride gas, from concentrated hydrochloric acid, is held near it
- test for chlorine:
 - When damp litmus paper is put into chlorine gas the litmus paper is bleached and turns white

2.45 describe how to carry out a flame test

- Take a sample of the metal on a wire and put it in a flame, the flame will turn a specific colour, showing what metal it is

2.46 know the colours formed in flame tests for these cations: Li^+ , Na^+ , K^+ , Ca^{2+} , Cu^{2+}

Lithium	Red
Sodium	Yellow
Potassium	Lilac
Calcium	Orange-red
Copper	Blue-green

2.47 describe tests for these cations: NH_4^+ using $\text{NaOH}(\text{aq})$ and identifying the gas evolved, Cu^{2+} , Fe^{2+} and Fe^{3+} using $\text{NaOH}(\text{aq})$

- Ammonia reacts with $\text{NaOH}(\text{aq})$ forming $\text{NH}_3(\text{g})$, use damp red litmus paper – it will turn blue showing the presence of ammonia gas
- Copper(II) produces a blue precipitate
- Iron(II) produces a green precipitate
- Iron(III) produces a brown precipitate





2.48 describe tests for these anions: Cl^- , Br^- and I^- using acidified silver nitrate solution, SO_4^{2-} using acidified barium chloride solution, CO_3^{2-} using hydrochloric acid and identifying the gas evolved

- Halide ions
 - 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
- Sulfate ions
 - First add dilute hydrochloric acid, followed by barium chloride solution
 - A white precipitate will form when sulfate ions are in this solution
- Carbonate ions
 - 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 .

2.49 describe a test for the presence of water using anhydrous copper(II) sulfate

- Anhydrous copper(II) sulfate is white
 - When water is present, it turns blue

2.50 describe a physical test to show whether a sample of water is pure

- The purity of water can be tested by evaporating it on an evaporating dish or by measuring its boiling point

