

Testing for Gases 4th October 2022

Test for Hydrogen

↳ lit splint into test tube of gas = makes a squeaky pop

Test for CO₂

↳ Bubble gas through limewater = turns cloudy white

Test for Oxygen

↳ glowing splint into test tube of gas = relights

Test for Chlorine

↳ damp litmus paper into test tube of gas = turns red then bleaches white

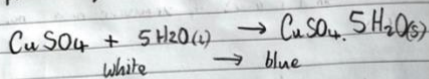
Test for ammonia

↳ damp red litmus paper into test tube of gas = turns blue

Testing for water

Chemical test

↳ white anhydrous copper sulfate turns blue in the presence of water



Physical test (for pure water)

↳ freezes at exactly 0°

↳ boils at exactly 100°

Testing for Anions

Test for carbonates (CO₃²⁻)

↳ add dilute hydrochloric acid (fizz - produce CO₂)

↳ test for CO₂

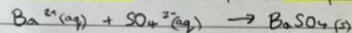
* Can also be done with other acids (but not sulfuric acid as sulfates produced are often insoluble and coats solid carbonate)

Test for sulfates (SO₄²⁻)

↳ Make solution with distilled water

↳ dilute hydrochloric acid (removes other anions (such as carbonates) which would produce a white solid)

↳ add barium chloride solution = produces white precipitate of barium sulfate



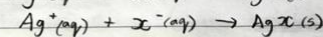
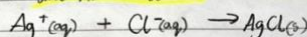
* Can also be done with nitric acid and barium nitrate

Test for Halides

↳ dissolve the salt in distilled water

↳ add dilute nitric acid (removes other anions = others produce white solid)

↳ add silver nitrate solution



Ion	Results (after adding HNO ₃ (aq) + AgNO ₃ (aq))	Name of Precipitate	Formula
Cl ⁻	White Precipitate	Silver Chloride	AgCl
Br ⁻	Cream Precipitate	Silver bromide	AgBr
I ⁻	Yellow Precipitate	Silver iodide	AgI

Testing for Cations

Flame test

1. Use platinum or nichrome wire
2. Dip wire into concentrated HCl (removes impurities)
3. Hold wire in non luminous flame (blue flame)
4. Repeat 2 + 3 until no colour visible
5. Dip wire in salt (you are testing) and hold into non luminous flame (blue flame)

Colours from flame test

- ↳ lithium - red
- ↳ sodium - yellow
- ↳ potassium - lilac
- ↳ Calcium - orange-red
- ↳ Copper (Cu²⁺) - blue-green

Test for ammonium (NH₄⁺)

↳ Add sodium hydroxide solution (produces ammonia)

↳ Test for ammonia - can smell ammonia if cold

Test for other cations

↳ Dissolve the salt in distilled water

↳ Add sodium hydroxide + precipitate forms (insoluble metal hydroxides)

ion	Results (after adding NaOH(aq))	Name of Precipitate	Formula
Cu ²⁺	Blue Precipitate	Copper (II) Hydroxide	Cu(OH) ₂
Fe ²⁺	Green Precipitate	Iron (II) Hydroxide	Fe(OH) ₂
Fe ³⁺	Orange-brown Precipitate	Iron (III) Hydroxide	Fe(OH) ₃

Preview from Notesale.co.uk
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