

GCSE-3-7 Making and testing for gases

Apparatus (per group)

- Test tubes (at least 3) and rack
- Test tube containing 2 spatulas of potassium manganate(VII) with a mineral wool plug
- Test tube holder
- Bunsen burner and heatproof mat
- Bung with right-angled delivery tube
- Wooden splints

Chemicals

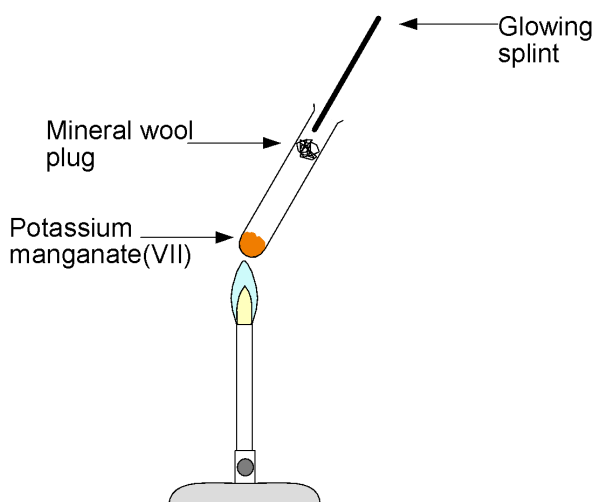
- Potassium manganate(VII)
- Marble chips
- Magnesium ribbon (2cm pieces)
- Hydrochloric acid (1M)
- Lime water

Waste disposal

- Test tubes: leave in racks for collection by technicians
- Delivery tubes: washing up bucket
- Used splints: solid waste once properly extinguished

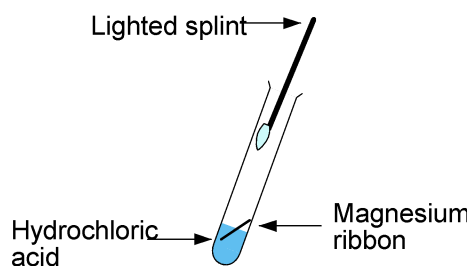
Making and testing for oxygen

1. Heat a test tube containing potassium manganate(VII) (provided for you) with a Bunsen burner.
2. Heat for about 1 min, then hold a **glowing** splint in the mouth of the test tube.
3. Note your observations.



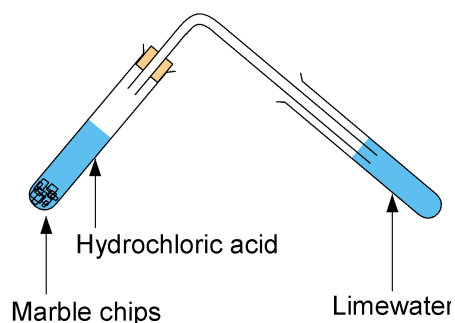
Making and testing for hydrogen

1. Place a piece of magnesium in a test tube.
2. Add hydrochloric acid (1 mol dm^{-3}) to a depth of about 2cm.
3. Hold your thumb over the open end to trap the gas given off for about 2 min.
4. Place a **lighted** splint inside the mouth of the test tube.
5. Note your observations.



Making and testing for carbon dioxide

1. Pour limewater into a test tube to a depth of about 3cm.
2. Place **a few** marble chips in a different test tube (no more than 1cm depth).
3. Add hydrochloric acid (1 mol dm^{-3}) to the marble, to a depth of about 2cm.
4. Quickly push the bung and delivery tube into the test tube. Insert the open end of the delivery tube into the test tube containing limewater so that the end is below the surface of the liquid.
5. Note your observations.



Experiment Hazard Assessment

Experiment: Making and testing for gases

Reference: GCSE-3-7

Chemical hazards

Potassium manganate(VII)	May intensify fire; oxidiser. Harmful if swallowed. Very toxic to aquatic life with long lasting effects. Under this procedure students do not handle the material so the hazard is minimal	CLEAPPS Hazcard 81
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Marble chips (calcium carbonate)	Currently not classified as hazardous	CLEAPPS Hazcard 19B
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Magnesium ribbon	Flammable solid	CLEAPPS Hazcard 59A
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Limewater (calcium hydroxide solution)	Treat as irritant	CLEAPPS Hazcard 18
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Hydrochloric acid (1M)	Currently not classified as hazardous	CLEAPPS Hazcard 47A
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Other hazards / precautions for teachers and technicians

None.