### What occurs during electrolysis of aqueous solutions?

- **At the cathode:**
  - Hydrogen ions and metal ions are present, hydrogen gas will be produced if metal formed is more reactive than hydrogen (e.g., sodium). If the metal formed is less reactive (e.g., copper), a solid layer of metal is formed on the cathode.

- **At the anode:**
  - Hydroxide ions and halide ions are present (e.g., Cl⁻), molecules of halogen gas form. If no halide ions present, hydroxide ions discharged and oxygen is formed.

### What are the half equations for electrolysis of aluminium oxide and why is cryolite added?

- **Half equation at anode:**
  \[ 2O_2 \rightarrow O_2 + 4e^- \]

- **Cathode:**
  \[ Al^{3+} + 3e^- \rightarrow Al \]

Cryolite is added to lower melting point of aluminium oxide and therefore save energy.

### What does metal reactions with acids tell us about reactivity?

- **Some metals react with acids to produce a salt and hydrogen gas.**
- **The speed of a reaction is indicated by the rate at which bubbles of hydrogen are given off.**
- **More reactive metals have a faster reaction.**
- **Most reactive metals react explosively.**
- **Less reactive:**
  - Less violent
  - Copper won't react with cold dilute acids.

### How can soluble salts be made using an insoluble base?

- **Gently warm dilute acid using Bunsen burner, turn off Bunsen burner.**
- **Add insoluble base until some reacts.**
- **Filter insoluble solid from solution to get salt solution.**
- **Gently heat using water bath or electric heater to evaporate some water.**
- **Stop heating and leave to cool.**
- **Crystals can be filtered and dried. Crystalisation.**