

What occurs during electrolysis of aqueous solutions?

Have to factor in ions in water

At the cathode, if hydrogen ions and metal ions are present, hydrogen gas will be produced if metal formed is more reactive than hydrogen eg sodium. If the metal formed is less reactive eg copper, a solid layer of metal is formed on the cathode. At the anode if hydroxide ions and halide ions are present eg 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- $2\text{O}^{2-} \rightarrow \text{O}_2 + 4\text{e}^-$

Cathode- $\text{Al}^{3+} + 3\text{e}^- \rightarrow \text{Al}$

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 no more reacts

Filter out excess and from solution to get salt solution

Seal off flask using water bath or electric heater to evaporate some water.

Stop heating and leave to cool.

Crystals can be filtered and dried. Crystallisation

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