OCR (B) Chemistry A-Level

ES2 - Redox

Flashcards

What is electrolysis?

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Electrolysis is the breaking down of a substance using electrical energy.

How is electrolysis done in the lab?

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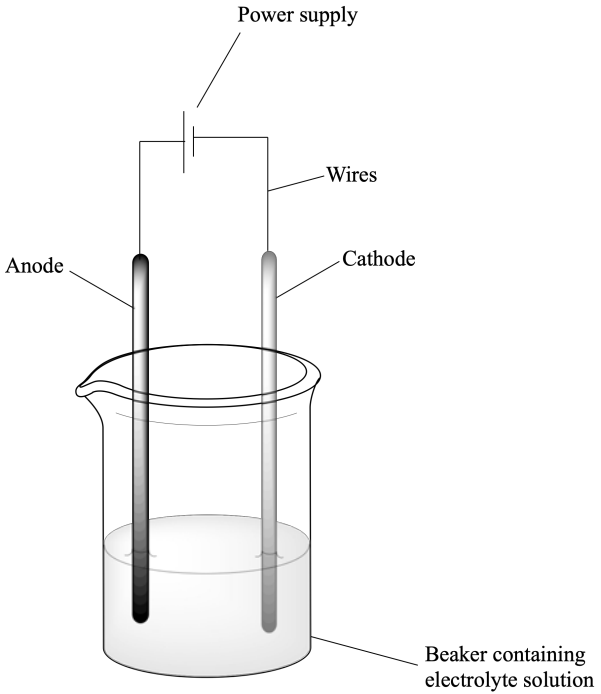
Using the following setup:

Two non-reactive electrodes are connected to the power supply and placed in the solution, the power is turned on and electrolysis starts.



How does electrolysis work?

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The cations (negative ions) are attracted to the cathode and are oxidised. The anions (positive ions) are attracted to the anode and reduced, the compound is therefore broken up as the two ions do not need each other to be stable.

What is a half equation?

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A half equation shows the reaction that happens at the one electrode in an electrolysis reaction.

$$2Cl^-_{(aq)} \Longrightarrow Cl_{2\,(g)} + 2e^-$$

What are the equations for the electrolysis of NaCl solution?

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Half equations

$$2Cl^-_{(aq)} \Longrightarrow Cl_{2\,(g)} + 2e^-$$

$$2H^+_{(aq)} + 2e^- \Longrightarrow H_{2\,(g)}$$

$$2Cl^-_{(aq)} + 2H^+_{(aq)} \Longrightarrow Cl_{2\,(g)} + H_{2\,(g)}$$

What is an oxidising agent?

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An oxidising agent is a substance that removes electrons from other species by accepting electrons and getting reduced.

What is a reducing agent?

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A reducing agent is a substance that donates electrons to other species by getting oxidised.

What does the Roman Numeral indicate in copper(I) sulfide?

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It indicates that the oxidation number of copper is +1. We can therefore infer that the formula of the compound is Cu_2S.

What does the Roman Numeral indicate in sodium chlorate(I)?

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It indicates that the oxidation number of chlorine is +1 in the compound. The oxidation numbers of oxygen and sodium do not change very often so we can assume that they are -2 and +1 respectively. We can therefore infer that the formula of the compound is NaClO.