

WJEC Chemistry GCSE

Specified Practical 6B

Electrolysis of Aqueous Solutions

[Methods are adapted from the [Royal Society of Chemistry](#) and from the [AQA GCSE Chemistry Practical Handbook](#)]

England Specification



Electrolysis

Aim

To investigate the products of the electrolysis of aqueous solutions using inert electrodes.

Equipment list

- 0.5 M copper(II) sulphate solution
- A petri dish lid with bored holes
- Two carbon rod electrodes with support bungs
- Two crocodile/4mm plug leads
- Low voltage power supply

Method

1. Add about 50cm³ of copper(II) sulphate solution to a beaker.
2. Add the lid and insert electrodes through the holes making sure the electrodes don't touch.
3. Attach crocodile leads to the electrode and connect the rods to the DC terminals of a low voltage power supply.
4. Set the power supply to 4V and switch the power supply on.
5. Using the forceps hold the litmus paper near the positive electrode.
6. After a few minutes turn the power supply off and observe the negative electrode.
7. Record observations at the electrodes.

Results

A deposit of copper will form on the cathode and will often be powdery and uneven. A much lower current is used in the process of electroplating as the copper coating is shinier and more difficult to rub off.

Bubbles of gas (oxygen) are formed at the anode.

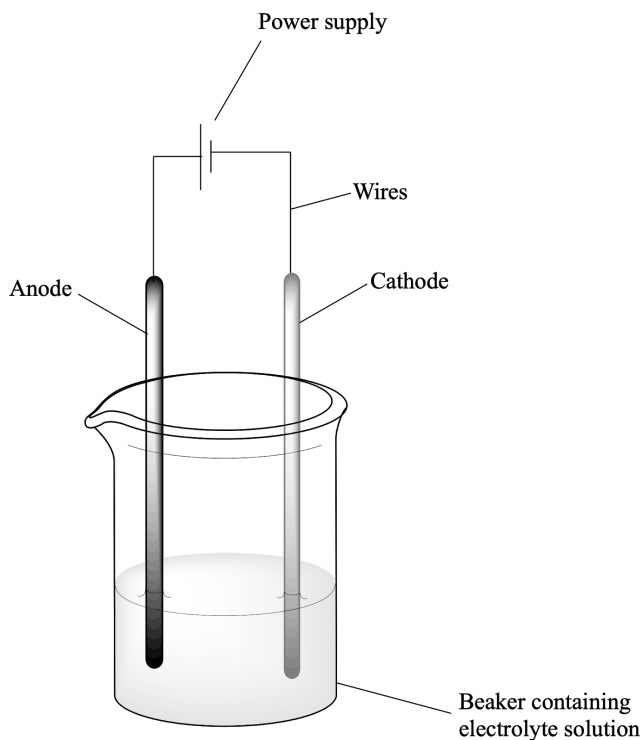
Cathode reaction: $\text{Cu}^{2+}(\text{aq}) + 2\text{e}^{-} \rightarrow \text{Cu}(\text{s})$

Anode reaction: $2\text{H}_2\text{O}(\text{l}) \rightarrow \text{O}_2(\text{g}) + 4\text{H}^{+}(\text{aq}) + 4\text{e}^{-}$





Diagram



Safety precautions

- Safety goggles must be worn.
- Take care when using electrical equipment around liquids.

