

# OCR (B) Chemistry GCSE

## PAG 2 - Electrolysis

### Flashcards

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# What is the purpose of electrolysis?



What is the purpose of electrolysis?

Separate electrolytes (dissolved or molten ionic compounds) using electricity



What are the products of electrolysis of sodium chloride?



What are the products of electrolysis of sodium chloride?

Hydrogen gas at negative electrode

Chlorine gas at positive electrode

Solution of sodium hydroxide



What are the products of electrolysis of copper sulfate?



What are the products of electrolysis of copper sulfate?

Copper at negative electrode

Oxygen at positive electrode



What forms at the cathode and the anode in electrolysis?





What forms at the cathode and the anode in electrolysis?

Cathode - metals or hydrogen

Anode - non-metals



# How do you set up an electrochemical cell?



# How do you set up an electrochemical cell?

Place positive and negative electrodes in a beaker containing a molten or dissolved ionic compound.

Connect both electrodes to a power supply with wires.



Describe the test for oxygen (chemistry  
only)



Describe the test for oxygen (chemistry only)

A test tube of oxygen will relight a glowing splint



# Describe the test for hydrogen (chemistry only)



Describe the test for hydrogen (chemistry only)

A lighted splint placed in a test tube of hydrogen will make a squeaky pop



Describe the test for carbon dioxide  
(chemistry only)





Describe the test for carbon dioxide (chemistry only)

Forms a white precipitate with calcium carbonate or turns limewater from colourless to cloudy



Describe the test for chlorine (chemistry  
only)



Describe the test for chlorine gas (chemistry only)

Damp blue litmus paper turns red then fades to white



How would you carry out a flame test?  
(Chemistry only)



How would you carry out a flame test? (chemistry only)

- Clean a wire loop in HCl to remove unwanted ions
- Dip the wire loop into your test sample
- Record the colour of the flame



What colour is the flame test for lithium ions? (Chemistry only)



What colour is the flame test for lithium ions?  
(chemistry only)

Red



What colour is the flame test for sodium ions? (Chemistry only)





What colour is the flame test for sodium ions?  
(chemistry only)

Yellow



What colour is the flame test for potassium ions? (Chemistry only)



What colour is the flame test for potassium ions?  
(chemistry only)

Lilac



What colour is the flame test for calcium ions? (Chemistry only)



What colour is the flame test for calcium ions?  
(chemistry only)

Orange-red



What colour is the flame test for copper ions? (Chemistry only)



What colour is the flame test for copper ions?  
(chemistry only)

Blue-green



What colour is the precipitate when sodium hydroxide reacts with iron (II) ions? (Chemistry only)





What colour is the precipitate when sodium hydroxide reacts with iron (II) ions? (chemistry only)

Green



What colour is the precipitate when sodium hydroxide reacts with iron (III) ions? (Chemistry only)



What colour is the precipitate when sodium hydroxide reacts with iron (III) ions? (chemistry only)

Orange brown



What colour is the precipitate when sodium hydroxide reacts with copper (II) ions? **(Chemistry only)**



What colour is the precipitate when sodium hydroxide reacts with copper (II) ions? (chemistry only)

Blue



What colour is the precipitate when sodium hydroxide reacts with calcium ions? (Chemistry only)



What colour is the precipitate when sodium hydroxide reacts with calcium ions? (chemistry only)

White



What colour is the precipitate when sodium hydroxide reacts with zinc ions? (Chemistry only)





What colour is the precipitate when sodium hydroxide reacts with zinc ions? (chemistry only)

White



How could you distinguish between  $\text{Zn}^{2+}$   
and  $\text{Ca}^{2+}$  ions? (chemistry only)



How could you distinguish between  $\text{Zn}^{2+}$  and  $\text{Ca}^{2+}$  ions? (chemistry only)

Add excess NaOH:

- $\text{Ca}(\text{OH})_2$  precipitate doesn't change
- $\text{Zn}(\text{OH})_2$  precipitate dissolves to form a colourless solution



# Describe the test for carbonate ions (chemistry only)



Describe the test for carbonate ions (chemistry only)

Add dilute acid.

Pass gaseous product through limewater  
( $\text{CO}_2$  turns limewater cloudy).



# Describe the test for sulfate ions (chemistry only)



Describe the test for sulfate ions (chemistry only)

Add a few drops of dilute hydrochloric acid then a few drops of dilute barium chloride solution.

White precipitate forms.

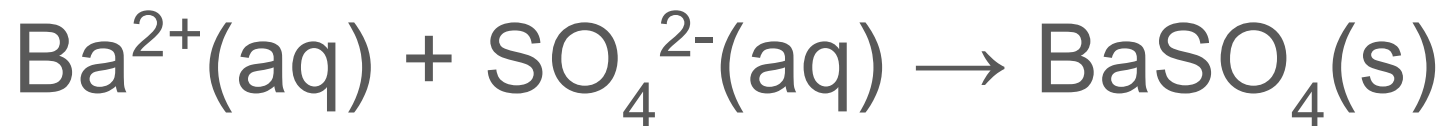


Write the ionic equation for the test for sulfate ions (higher only) (chemistry only)





Write the ionic equation for the test for sulfate ions  
(higher only) (chemistry only)



# Describe the test for halide ions (chemistry only)



Describe the test for halide ions (chemistry only)

Add nitric acid to react with carbonate ions so no  $\text{Ag}_2\text{CO}_3$  forms (white solid).

Add silver nitrate. Precipitate forms:

White -  $\text{AgCl}$

Cream -  $\text{AgBr}$

Yellow -  $\text{AgI}$



How can you detect whether a substance is a strong acid or a strong alkali?



# How can you detect whether a substance is a strong acid or a strong alkali?

Add universal indicator:

- Red: Strong acid
- Yellow: Weak acid
- Blue/purple: Strong alkali
- Light blue: Weak alkali
- Green: Neutral

