

Edexcel Chemistry GCSE

CP 7 - Identifying Ions

(Chemistry only)

Flashcards

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How would you carry out a flame test?



How would you carry out a flame test?

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



What colour is the flame test for lithium ions?



What colour is the flame test for lithium ions?

Red



What colour is the flame test for sodium ions?



What colour is the flame test for sodium ions?

Yellow



What colour is the flame test for potassium ions?



What colour is the flame test for potassium ions?

Lilac



What colour is the flame test for calcium ions?



What colour is the flame test for calcium ions?

Orange-red



What colour is the flame test for copper ions?



What colour is the flame test for copper ions?

Blue-green



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



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

Green



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



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

Brown



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



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

Blue



What colour is the precipitate when sodium hydroxide reacts with calcium ions?



What colour is the precipitate when sodium hydroxide reacts with calcium ions?

White



What colour is the precipitate when sodium hydroxide reacts with aluminium ions?



What colour is the precipitate when sodium hydroxide reacts with aluminium ions?

White



Write the ionic equation for the test for calcium ions (include state symbols)
(higher only)



Write the ionic equation for the test for calcium ions
(include state symbols) (higher only)



How would you distinguish between aluminium ions and calcium ions?



How would you distinguish between aluminium ions and calcium ions?

Add excess NaOH

$\text{Al}(\text{OH})_3$ precipitate reacts to form a colourless solution, $\text{Ca}(\text{OH})_2$ precipitate remains unchanged



Describe the test for ammonium ions
(NH_4^+)



Describe the test for ammonium ions (NH_4^+)

Add dilute NaOH to the sample and warm.

Ammonia gas is produced which turns damp red litmus paper blue.



Describe the test for carbonate ions



Describe the test for carbonate ions

Add dilute acid.

Pass gaseous product through limewater.

CO_2 turns limewater cloudy.



Describe the test for sulfate ions



Describe the test for sulfate ions

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

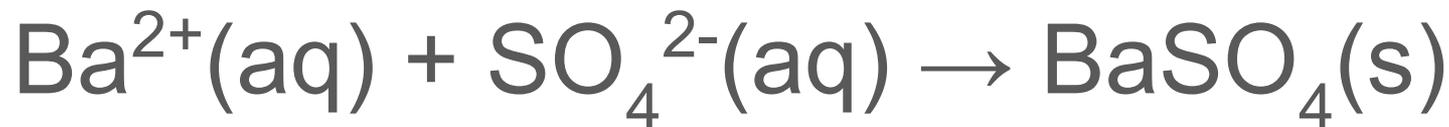
White precipitate forms.



Write the ionic equation for the test for sulfate ions (include state symbols)
(higher only)



Write the ionic equation for the test for sulfate ions
(include state symbols) (higher only)



Why is acid added before testing for sulfate ions? Why can't sulfuric acid be used?



Why is acid added before testing for sulfate ions?
Why can't sulfuric acid be used?

Carbonate ions react with barium chloride to produce a white precipitate. Acid reacts with CO_3^{2-} ions to prevent a false positive result.

Addition of sulfuric acid would introduce sulfate ions to the sample giving a false positive result.



Describe the test for halide ions. What would be observed?



Describe the test for halide ions

Add dilute nitric acid to react with carbonate ions so no Ag_2CO_3 forms (white solid).

Add silver nitrate. Precipitate forms:

- White: AgCl
- Cream: AgBr
- Yellow: AgI



Describe the test for carbon dioxide



Describe the test for carbon dioxide

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

