

Test for ammonia ions

The ammonium ion = cation that **doesn't give a colour**. Usual test:

- Heat NH_4^+ with sodium hydroxide = **ammonia gas**
- Ammonia gas can be **recognised by smell**
- Or **HCl gas** can be added to make **white fumes of ammonium chloride**

Why are the observations of MgCl_2 and CaCl_2 are different in their flame tests?

- In Mg energy levels are further apart
- Therefore, energy released is outside the region of the electromagnetic spectrum
- Vice versa

2 factors that **decrease** the RoR? (4)

- Decrease SA = fewer collisions between reactants
- Decrease concentration of acid = few collisions between reactants.

What causes the colour of the flame test? (2)

- Excited electrons
- Move down the energy levels

Preview from Notesale.co.uk
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Hydrogen halides and ammonia/water

iii) hydrogen halides with ammonia and with water (to produce acids)

~ Reaction of Hydrogen halide and ammonia gas

- Forms salt -> white ionic solid
- And **MISTY FUMES**
- E.g $\text{NH}_3(\text{g}) + \text{HCl}(\text{g}) \rightarrow \text{NH}_4\text{Cl}(\text{s})$

~ Reaction of hydrogen halide and water

- = colourless misty fumes of acidic gas
- E.g $\text{HCl} + \text{water} \rightarrow \text{hydrochloric acid}$.

Coloured Precipitate	Observations
AgCl	Precipitate dissolves in dilute ammonia solution to give colourless solution
AgBr	Doesn't dissolve in dilute ammonia solution but dissolves in concentrated ammonia solution
AgI	Doesn't dissolve in dilute or concentrated ammonia solution

Fluorine and Astatine

Be able to make predictions about fluorine and astatine and their compounds, in terms of knowledge of trends in halogen chemistry:

- use trends in the group to make predictions about the behaviour of **fluorine** and **astatine**.

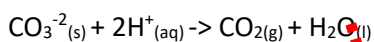
Test for ions

Know reactions, including ionic equations where appropriate, for identifying:

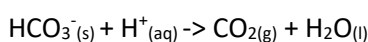
Testing for Carbonates

i) carbonate ions, CO_3^{2-} , and hydrogen carbonate ions, HCO_3^- — using an aqueous acid to form carbon dioxide:

- With **dilute HCl**, carbonates FIZZ as CO_2 is being produced.



- With **dilute HCl**, hydrogen carbonates FIZZ too as CO_2 is being produced.



You can **test** for CO_2 using lime water:

- If it goes cloudy there are **carbonate** and **hydrogen carbonate** ions.

