

## Task

A lab has analysed five different substances to identify them.

The results of the tests are given below, what is the name of each compound?

Substance	Tests carried out and the results	Name of the compound
A	<p>Produced a blue precipitate when added to sodium hydroxide.</p> <p>Flame test: produced a green flame.</p> <p>When reacted with <u>dilute</u> hydrochloric acid, bubbles of gas were seen. When these were tapped off through a delivery tube into a solution of limewater, the limewater turned cloudy.</p>	
B	<p>Flame test: produced a yellow flame.</p> <p>Produced a yellow precipitate when in solution and reacted with silver nitrate in the presence of dilute nitric acid.</p>	
C	<p>Formed a white precipitate when reacted with sodium hydroxide solution. This did not dissolve when an excess of sodium hydroxide was added.</p> <p>Flame test: produced an orange-red flame.</p> <p>When in solution and reacted with barium chloride in the presence of dilute hydrochloric acid it produced a white precipitate.</p>	
D	<p>Forms a white precipitate when reacted with sodium hydroxide solution, but this precipitate dissolved when an excess of sodium hydroxide was added.</p> <p>When reacted with silver nitrate in the presence of dilute nitric acid it also formed a white precipitate.</p>	
E	<p>Forms a green precipitate when reacted with sodium hydroxide.</p> <p>Forms a cream precipitate when reacted with silver nitrate in the presence of dilute nitric acid.</p>	

## Answers and teaching notes

This assesses student recall of chemical tests, and their ability to apply these to identify chemical compounds. It can be an effective way of checking students' knowledge of the many chemical tests, or as an activity to consolidate understanding of the range of chemical tests for positive and negative ions.

Substance	Tests carried out and the results	Name of the compound
A	<p>Produced a blue precipitate when added to sodium hydroxide.</p> <p>Flame test: produced a green flame.</p> <p>When reacted with dilute hydrochloric acid, bubbles of gas were seen. When these were tapped off through a delivery tube into a solution of limewater, the limewater turned cloudy.</p>	<b>copper carbonate</b>
B	<p>Flame test: produced a yellow flame.</p> <p>Produced a yellow precipitate when in solution and reacted with silver nitrate in the presence of dilute nitric acid.</p>	<b>sodium iodide</b>
C	<p>Formed a white precipitate when reacted with sodium hydroxide solution. This did not dissolve when an excess of sodium hydroxide was added.</p> <p>Flame test: produced an orange-red flame.</p> <p>When in solution and reacted with barium chloride in the presence of dilute hydrochloric acid it produced a white precipitate.</p>	<b>calcium sulfate</b>
D	<p>Forms a white precipitate when reacted with sodium hydroxide solution, but this precipitate dissolved when an excess of sodium hydroxide was added.</p> <p>When reacted with silver nitrate in the presence of dilute nitric acid it also formed a white precipitate.</p>	<b>aluminium chloride</b>
E	<p>Forms a green precipitate when reacted with sodium hydroxide.</p> <p>Forms a cream precipitate when reacted with silver nitrate in the presence of dilute nitric acid.</p>	<b>iron (II) bromide</b>