

## GCSE Chemistry - Tests You Need To Know

1. This question is about chemicals in fireworks.

Coloured flames are produced because of the metal ions present in fireworks.

(a) What colour flame would sodium ions produce?

(b) Name a metal ion that would produce a green flame.

Some fireworks contain a mixture of metal ions.

(c) Why is it difficult to identify the metal ions from the colour of the flame?

The compounds in fireworks also contain non-metal ions. A scientist tests a solution of the chemicals used in a firework.

(d) Silver nitrate solution and dilute nitric acid are added to the solution.

A cream precipitate forms.

Which ion is shown to be present by the cream precipitate?

(e) Describe a test to show the presence of sulfate ions in the solution.

Give the result of the test if there are sulfate ions in the solution.

Test:

Result:

*AQA GCSE Chemistry Paper 2, June 2018*

2. (a) Describe the test to show that a gas is chlorine.

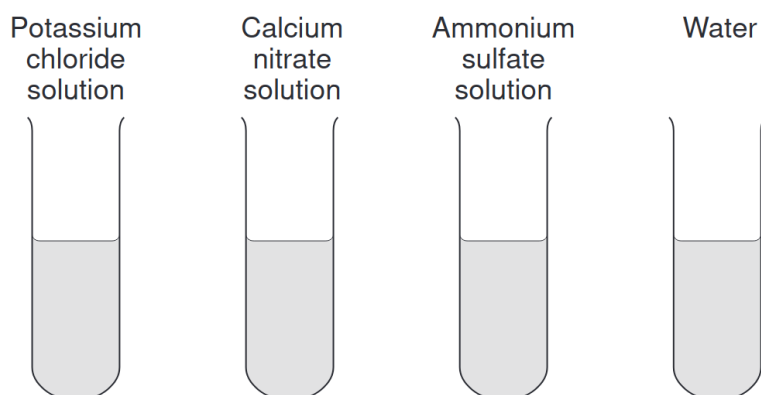
Chlorine is a toxic gas.

(b) State a safety precaution that should be taken when chlorine gas is formed in a reaction.

(c) Write the balanced equation for the decomposition of hydrochloric acid to form hydrogen and chlorine.

*Edexcel GCSE Chemistry Paper 1, June 2016*

3. Figure 1 shows four test tubes containing three different salt solutions and water.



**Figure 1**

Each solution and the water was tested with:

- silver nitrate in the presence of dilute nitric acid
- barium chloride in the presence of dilute hydrochloric acid.

(a) Complete the table of results:

	<b>Potassium chloride solution</b>	<b>Calcium nitrate solution</b>	<b>Ammonium sulfate solution</b>	<b>Water</b>
<b>Test with silver nitrate in the presence of dilute nitric acid</b>			No change	No change
<b>Test with barium chloride in the presence of dilute hydrochloric acid</b>		No change	White precipitate	

Flame tests can be used to identify metal ions.

(b) Complete the following sentences.

The flame colour for potassium ions is \_\_\_\_\_.

The flame colour for calcium ions is \_\_\_\_\_.

(c) Give one reason why a flame test would not show the presence of both potassium ions and calcium ions in a mixture.

4. Excess dilute sulfuric acid is added to a solid sample of a copper compound. A gas is given off and a blue solution is formed.

(a) The gas turns limewater cloudy.

Explain how this result is used to identify the **anion\*** in the copper compound.

\*anion is a negatively charged ion

(b) When sodium hydroxide solution is added to the blue solution, a pale blue precipitate is formed.

Give the name or the formula of the pale blue precipitate.

(c) The blue solution contains sulfate ions.

Barium chloride solution is added to this blue solution.

A white precipitate of barium sulfate forms.

Write the ionic equation, including state symbols, for this reaction.

(d) A colourless solution contains a halide ion.

Describe a test to show which of the halide ions, chloride, Cl<sup>-</sup>, bromide, Br<sup>-</sup>, or iodide, I<sup>-</sup>, is present in the colourless solution.

*Edexcel GCSE Chemistry Paper 3, June 2017*

5. This question is about chemical analysis.

A student has solutions of three compounds, X, Y and Z.

The student uses tests to identify the ions in the three compounds.

The student records the results of the tests in the table below.

	Test			
Compound	Flame test	Add sodium hydroxide solution	Add hydrochloric acid and barium chloride solution	Add nitric acid and silver nitrate solution
X	No colour	Green precipitate	White precipitate	No reaction
Y	Yellow flame	No reaction	No reaction	Yellow precipitate
Z	No colour	Brown precipitate	No reaction	Cream precipitate

Identify the two ions present in each compound, X, Y and Z.

*AQA GCSE Chemistry Paper 3, June 2015*