



Chemistry

8. Chemical analysis

Revisiting Booklet

Name:

Purity, formulations & chromatography

	Everyday definition + example	Chemistry definition + example	How can it be identified
Pure substance			

What is a formulation?

Give an example of a formulation

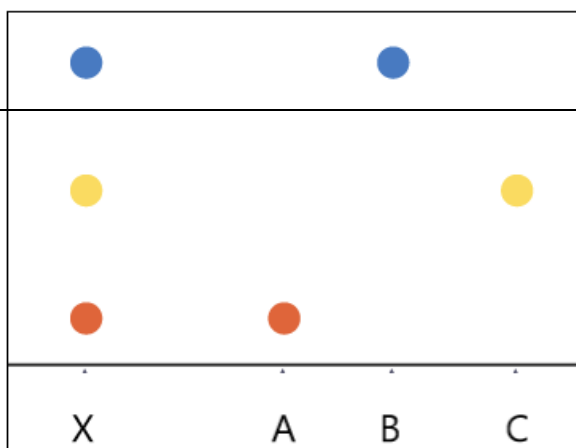
Chromatography

Chromatography can be used to separate _____ and give information to identify substances. Chromatography involves a stationary phase and a mobile phase, separate depends on the distribution of substances between the phases (the more soluble the higher it will move), and can be measured using a R_f value (always less than 1).

Equation for R_f value:

Required practical – Chromatography

Method:



1. Is A pure?
2. How many colours is X made of?
3. Which colours is X made of?

4. Work out the R_f value for A

Identification of common gases

Gas	How is the gas collected	Test	Results
Hydrogen			
Oxygen			
Carbon dioxide			
Chlorine			

Triple only

Identification of ions

Flame tests:

1. Clean the wire loop by reacting with _____ and then put into _____
2. Dip a _____ into a solution or solid of a metal substance.
3. Put the wire loop into a _____ flame

Element	Colour
Lithium	
Sodium	
Potassium	
Calcium	
copper	

If a sample contains a mixture of ions the flame colour can be masked.

Sodium hydroxide can be added to metal solutions to identify metals:

Solution containing	Result
Copper (II)	
Iron (II)	
Iron (III)	
Aluminium	
Calcium	
Magnesium	

What do these symbols mean when in equations?

- a. (s) _____
- b. (g) _____
- c. (l) _____
- d. (aq) _____

Write the ionic equations for the following reactions:

1. Sodium hydroxide and copper sulphate
2. To make iron (III) hydroxide

How can you test for the following ions:

Ion		Reaction	Test	Result
Carbonates				
Halides	Chloride	n/a		
	Bromide			
	Iodide			
Sulfates		n/a		

Instrumental methods

Elements & compounds can be detected & identified using instrumental methods.

What are the advantages of instrumental methods over chemical tests:

1. _____
2. _____
3. _____

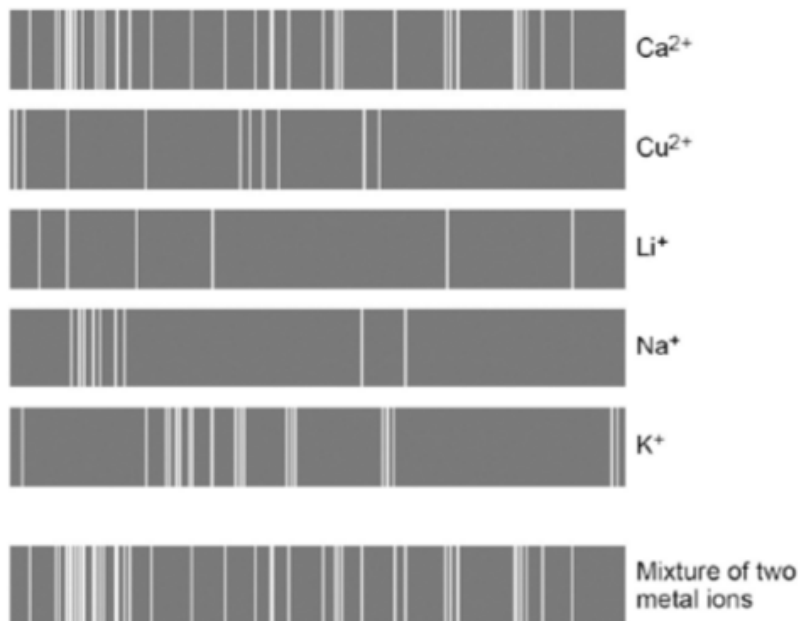
Flame emission spectroscopy

The sample is put into a _____ and the light given out is passed through a spectroscope. The output is a line spectrum that can be analysed to _____ the metal ions in the solution & their _____.

(a) Flame emission spectroscopy can be used to analyse metal ions in solution.

Figure 3 gives the flame emission spectra of five metal ions, and of a mixture of two metal ions.

Figure 3



Use the spectra to identify the **two** metal ions in the mixture.

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(2)

(b) Explain why a flame test could **not** be used to identify the two metal ions in the mixture.

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(2)