



Knowledge Organiser – Chemical Analysis

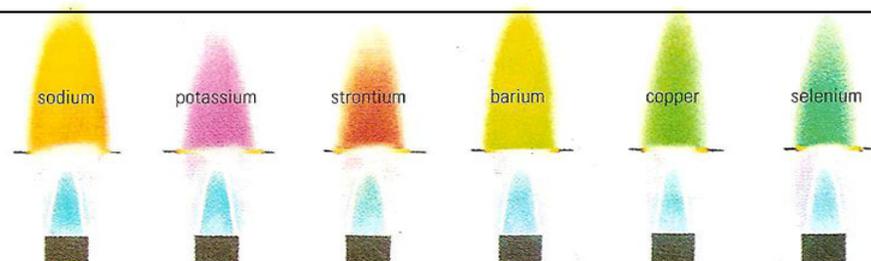


Knowledge and Content

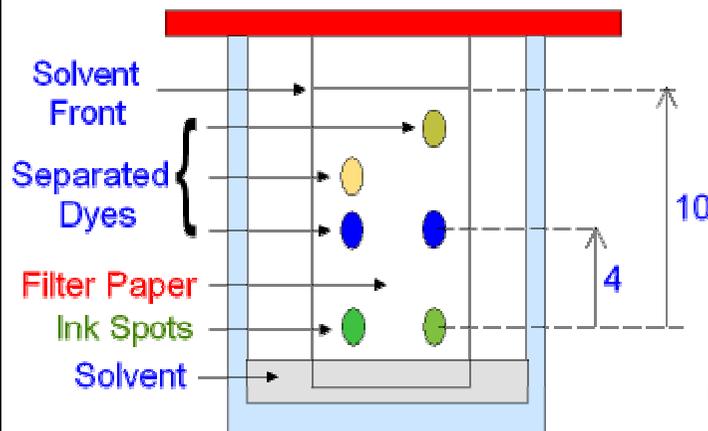
- Describe, explain and identify examples of processes of separation such as filtration, crystallisation and distillation
- Identify formulations given appropriate information
- Explain the particular purpose of each chemical in a mixture
- Explain how to set up chromatography paper
- Recall the tests for four common gases
- Carry out flame test procedures and identify the colours of flames of ions
- Recognise the precipitate colour of metal hydroxides
- Write balanced equations for producing insoluble metal hydroxides
- Identify the tests for carbonates
- Explain the tests for halides and sulphates
- Identify advantages of instrumental methods compared with the chemical tests
- Describe flame emission spectroscopy

Mathematical and Practical Skills

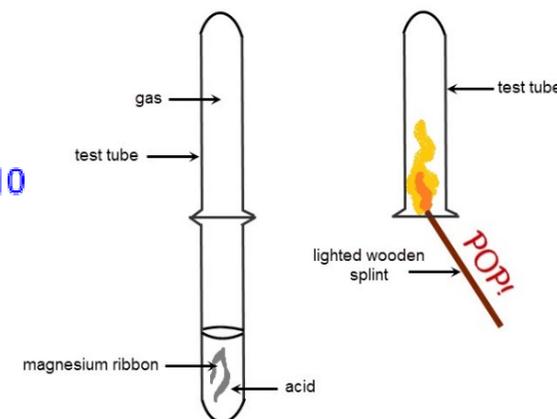
- Investigate how paper chromatography can be used to separate and tell the difference between coloured substances.
- Be able to calculate R_f values.
- Use chemical tests, such as flame tests, to identify the ions present in unknown single ionic compounds.
- Distinguish pure and impure substances using melting point and boiling point data
- Translate information between graphical and numerical form
- Use an appropriate number of significant figures
- Recognise and use expressions in decimal form
- Solve simple algebraic equations
- Understand and use simple mathematical symbols
- Construct and interpret frequency tables and diagrams, bar charts and histograms
- Make estimates of the results of simple calculations



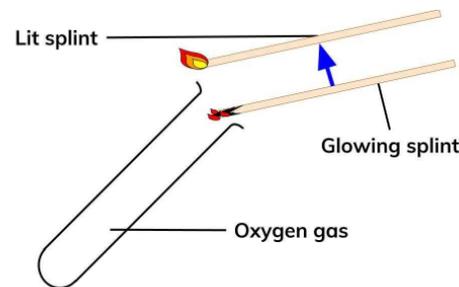
Chromatography



Hydrogen Test



Oxygen Test



Key Terms

Keyword	Definition
Chromatography	The process whereby small amounts of dissolved substances are separated by running a solvent along a material such as absorbent paper.
R_f (Retention Factor)	A measurement from chromatography: it is the distance a spot of substance has been carried above the baseline divided by the distance of the solvent.
Formulation	A mixture that has been designed as a useful product.
Filtration	The technique used to separate substances that are insoluble in a particular solvent from those that are soluble.
Distillation	Separation of a liquid from a mixture by evaporation followed by condensation.
Flame Emission Spectroscopy	A method of instrumental analysis in which the light given off when a sample is placed in a flame produces characteristic line spectra to identify and measure the concentration of metal ions in the sample.
Melting Point	The temperature at which a material changes from a solid to a liquid (melts).
Boiling Point	The boiling point is the temperature at which a material changes from a liquid to a gas (boils).