

Triple Unit Overview – C8 Chemical analysis

You will learn about:

- How to produce pure samples and mixtures.
- How we test samples of gases and coloured pigments.

You will be able to:

- Create and analyse chromatograms.



Key Words

boiling point
chromatography
compound
elements
Flame emission spectroscopy
flame test
melting point
product
pure
Rf value
solute solution
spectrum (line)
stationary phase

Key learning points

Pure substances	
Formulating mixtures	
Chromatography	
Calculate Rf values	
Testing for gases	
Flame tests	
Metal hydroxides	
Testing for anions	
RP Identifying ions	
Instrumental methods	

Links to other subjects:

SMSC: Discuss the meaning of the term pure. Research how chemical analysis has been used to detect and solve crimes especially in forgery and murder by poisoning. Research how robotic spacecraft sent to investigate other planets analyse their atmospheres and surface materials using instrumentation.

Literacy: Explain, in terms of intermolecular forces, the terms melting point and boiling point. Describe a method for paper chromatography. Explain what happens to substances during the process of chromatography. Describe to another student what the Rf value is and give instructions on how to calculate the Rf value. Describe analytical tests for hydrogen, oxygen, carbon dioxide and chlorine. Describe the different flame tests. Describe how sodium hydroxide can be used to identify some cations, how dilute acids can be used to identify carbonates, how silver nitrate can be used to identify halides and how barium chloride in the presence of dilute hydrochloric acid can be used to identify sulfate ions. Describe the process of flame emission spectroscopy and explain what happens to the sample.

Numeracy: Use data to identify pure and impure substances. Research melting and boiling points of common pure substances and compounds. Suggest reasons for differences in data available on the internet. Calculate the Rf value of a substance. Interpret instrumental results.