

SUBJECT: Science

UNIT: C8: Chemical analysis



While you were away.

Lesson 1: Pure Substances and Mixtures

1. What is the difference between a pure substance and an impure substance?
2. How can you tell if a substance is impure based on its melting and boiling points?

Lesson 2: Chromatography

1. What are the mobile and stationary phases in a chromatography experiment?
2. Why must the baseline in chromatography be drawn with a pencil and placed above the solvent level?

Lesson 3: Analysing Chromatograms

1. What does the number of spots on a chromatogram indicate about a mixture?
2. How can the height of a spot on a chromatogram help in comparing mixtures?

Lesson 4: Testing for Ions

1. What is the test for carbon dioxide and how do you know if it is present?
2. How can you test for the presence of chlorine gas using litmus paper?

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Pure substances

Made from one type of substance.

Ambitious Vocabulary

Mixture

Separation

Pure substances and mixtures

A pure substance is made from one type of substance.

An impure substance is made from two or more types of substances. Impure substances have a range of numbers for the boiling and melting points.

Chromatography

This is used to separate a mixture of colours.

Chromatograms

Number of spots tells you the number of components of the mixture.

The height of the spot helps you to compare what different mixtures contain.

Chromatography experiment

Draw the baseline with a pencil 1cm above the bottom of the paper.

The baseline must be placed slightly above the level of the solvent.

Mobile phase is the solvent.

Stationary phase is the filter paper.

Testing for hydrogen gas

Place a lit splint above the gas.

If hydrogen is present a squeaky pop will be heard.

Testing for carbon dioxide

Make carbon dioxide using a metal carbonate and acid reacted together.

The gas is collected in limewater using a delivery tube.

If the limewater goes cloudy then carbon dioxide is present.

If the limewater does not go cloudy then carbon dioxide is not present.

Keywords

Pure
Impure
Formulation
Mixture
Separate
Chromatography
Mobile phase
Stationary phase

RF calculation

Using a ruler measure the distance from the baseline to the spot. Measure the distance from the baseline to the solvent line.

$$RF = \frac{\text{Distance moved by spot}}{\text{Distance moved by solvent}}$$

Testing for oxygen

Light a splint and blow it out so it is glowing. Place splint into the gas. The splint will relight if oxygen is present.

Testing for chlorine gas

Inset blue litmus paper into the chlorine gas. The paper will change to pink and then white if the chlorine is present.