WJEC (Eduqas) Chemistry GCSE

1 - Pure Substances and Mixtures

Flashcards

This work by PMT Education is licensed under CC BY-NC-ND 4.0

What is an element?

CC BY NC ND

What is an element?

A substance made from only one type of atom.

CC BY NC ND

What is a compound?

CC BY NC ND

What is a compound?

A substance made from two or more elements that are chemically joined and therefore have different properties to its constituent elements (e.g. NaCl, or sodium chloride/ salt, has different properties to Na, sodium, and Cl, chlorine.

CC BY NC ND

What is a mixture?

CC BY NC ND

What is a mixture?

A substance that consists of 2 or more elements/compounds not chemically combined together

The chemical properties of each substance within the mixture therefore remain unchanged.

CC BY NC ND

List 4 ways of separating mixtures

CC BY NC ND

List 4 ways of separating mixtures

Filtration, evaporation, chromatography, distillation

CC BY NC ND

What type of mixture can you separate by filtration?

CC BY NC ND

What type of mixture can you separate by filtration?

A mixture of an insoluble salt from a salt solution.

CC BY NC ND

Explain how you would obtain copper sulphate crystals from a copper sulphate solution

CC BY NC ND

Explain how you would obtain copper sulphate crystals from a copper sulphate solution

Using crystallisation:

1. Place the copper sulphate solution into an evaporating basin
2. Warm the solution, allowing the water to evaporate
3. Leave the remaining saturated solution to cool and copper sulphate crystals will begin to form

CC BY NC ND

What type of mixture can you separate by crystallisation?

CC BY NC ND

What type of mixture can you separate by crystallisation?

A mixture of a soluble salt and the solution it is dissolved in

CC BY NC ND

What separation method would you use to extract ethanol from a mixture of several liquids?

CC BY NC ND

What separation method would you use to extract ethanol from a mixture of several liquids?

Fractional distillation

CC BY NC ND

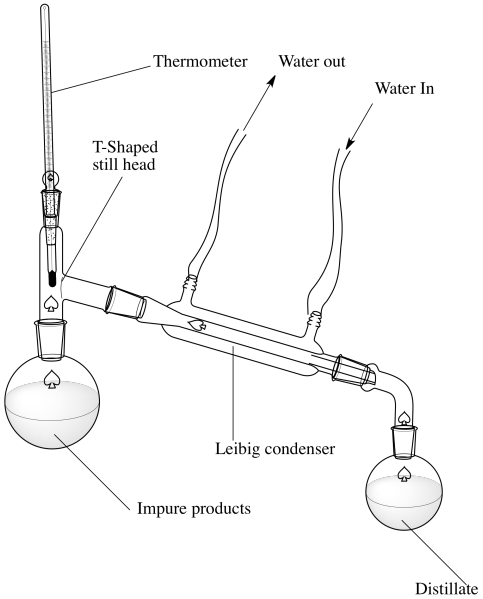
Explain the process of simple distillation

CC BY NC ND

Explain the process of simple distillation

Used to separate a solvent from a solution.

1. The dissolved solute has a much higher boiling point than the solvent.
2. When the solution is heated, solvent vapour evaporates from the solution.
3. The gas formed moves through Leibig condenser and cools.
4. The reformed liquid can now be collected.



CC BY NC ND

Which separation technique is used to separate crude oil and how does it work?

CC BY NC ND

Which separation technique is used to separate crude oil and how does it work?

Crude oil can be separated through fractional distillation. Crude oil is made from a mixture of different hydrocarbons.

1. The crude oil is heated in the fractionating column
2. The vaporised oil rises up the column
3. The different hydrocarbons within crude oil evaporate and condense at different temperatures
4. The hydrocarbons are therefore separated into fractions by the levels at which they condense

CC BY NC ND

What is a pure substance?

CC BY NC ND

What is a pure substance?

A single element or compound, not mixed with any other substance. They therefore melt and boil at single temperatures (unlike mixtures which melt over a range of a few degrees)

CC BY NC ND

What is a formulation? List some examples

CC BY NC ND

What is a formulation? List some examples

A mixture that has been designed as a useful product with a particular purpose.

Examples: foods, drinks, medicines, perfumes, paints, sunscreen

CC BY NC ND

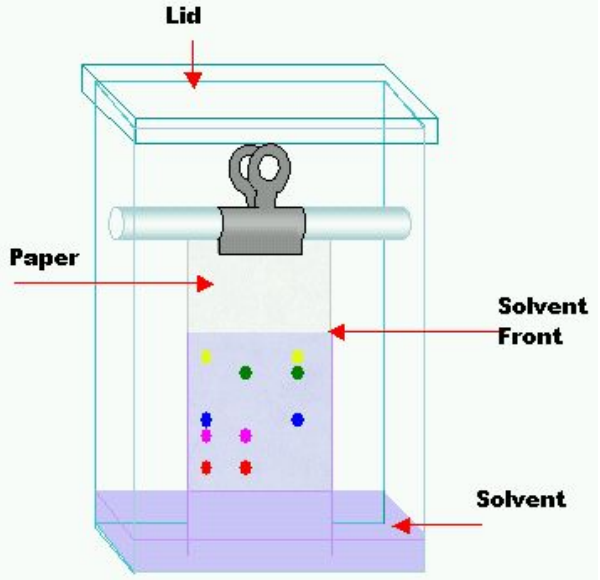
What is chromatographic data analysis?

CC BY NC ND

What is chromatographic data analysis?

Analytical technique separating compounds by their relative speeds in a solvent as it spreads through the paper. The more soluble a substance is, the further up the paper it travels

Compounds in a mixture separate into different spots but a pure mixture will produce a single spot in all solvents



Source: Wikipedia CC-BY-SA-3.0-migrated

CC BY NC ND

How do you calculate Rf values?

CC BY NC ND

What are Rf values?

Rf value = distance moved by substance ÷ distance moved by solvent

CC BY NC ND

Calculate the Rf value when the solvent has moved 40mm and the ink dot has moved 12mm

CC BY NC ND

Calculate the Rf value when the solvent has moved 40mm and the ink dot has moved 12mm

12/40 = 0.3

CC BY NC ND

Explain how chromatography results would show whether two inks contains identical pigments

CC BY NC ND

Explain how chromatography results would show whether two inks contains identical pigments

The pattern of the spots would be identical, as the pigments would separate and be found at the same distances on the chromatography paper

CC BY NC ND

In filtration, what is the name used to describe the solid remaining in the filter paper?

CC BY NC ND

In filtration, what is the name used to describe the solid remaining in the filter paper?

The filtrate

CC BY NC ND