AQA Chemistry GCSE

Required Practical 6

Chromatography

Methods taken from the AQA Required Practical Handbook

Chromatography

Aim

Investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Students should calculate Rf values.

Equipment List

- A 250 cm^3 beaker
- A wooden spill or pencil to support the chromatography paper
- Paper clip
- A ruler
- A pencil
- Distilled water
- Four known food colourings labelled A–D
- Unknown food colouring labelled U
- Rectangle of chromatography paper
- Five glass capillary melting point tubes

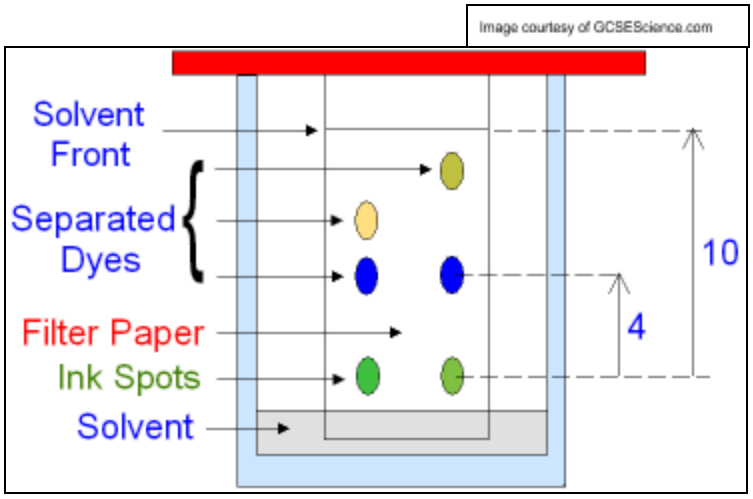
Method

1. Draw a horizontal pencil line 2 cm from the short edge of the chromatography paper. Mark pencil spots at equal intervals across the line but not too close to the end of the paper.
2. Use a glass capillary tube to put a small spot of each colouring on the pencil spots. A small spot ensures that the colouring separates clearly. Label each spot in pencil.
3. Pour about 1 cm^3 of water into the beaker.
4. Suspend the paper in the beaker so that bottom edge of the paper dips into the water.
5. Wait for the water solvent to travel at least three quarters of the way up the paper. Remove the paper and draw another pencil line at on the dry part of the paper right next to the wet edge. This is the solvent front, the distance travelled by the solvent.
6. Hang the paper up to dry thoroughly.
7. Calculate the R_f values for each spot. Rf value is calculated by distance travelled by substance/ solvent front.

Key points

- Make sure the pencil line is above the water surface, otherwise the colouring spots will dissolve into the water rather than rise up the paper
- Also make sure that the sides of the paper do not touch the beaker wall

Diagram



Safety Precautions

- Don't put food colouring in eyes, it may cause irritation.

Analysis of Results

To identify substances in the food colouring compare Rf values to know Rf values in data books.