

Edexcel Chemistry GCSE

CP 1 - Investigating the Composition of Inks

Flashcards

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Describe how to separate soluble coloured substances



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Chromatography:

Place a spot of the sample on a pencil line on a piece of chromatography paper. Place the paper in a beaker of solvent (below pencil line).

Remove from solvent and leave to dry once solvent has travelled up $\frac{2}{3}$ of the paper



Why should the line be drawn onto chromatography paper in pencil?



Why should the line be drawn onto chromatography paper in pencil?

Pencil doesn't travel up the paper whereas pen ink would.

Pencil is insoluble in the solvent.



Ink spots are placed above the level of solvent in the beaker. Why?



Ink spots are placed above the level of solvent in the beaker. Why?

If they were below the solvent level the ink would dissolve in the solvent rather than moving up the chromatography paper



What is meant by a 'solvent front'?



What is meant by a 'solvent front'?

The solvent front is the furthest distance reached by the solvent



How can you use chromatography to see if a certain substance is present in a mixture?



How can you use chromatography to see if a certain substance is present in a mixture?

Run a pure sample of this substance alongside the unknown mixture

If the R_f value of the pure substance matches the value of one of the spots from the mixture, it is likely to be present



Why should chromatography paper be removed from the solvent before the solvent front reaches the top?



Why should chromatography paper be removed from the solvent before the solvent front reaches the top?

To allow the distance moved by the solvent to be measured so that the R_f value can be calculated



What are the 2 phases in chromatography?



What are the 2 phases in chromatography?

Mobile phase - solvent which carries substances up the stationary phase

Stationary phase - paper or thin layer of an inert substance on a glass plate



How do you calculate the Rf value?



How do you calculate the Rf value?

$$R_f = \frac{\text{Distance travelled by substance}}{\text{Distance travelled by solvent}}$$

Rf is between 0 and 1



In paper chromatography, what is the stationary phase?



In paper chromatography, what is the stationary phase?

The chromatography paper



In paper chromatography, what is the mobile phase?



In paper chromatography, what is the mobile phase?

The solvent

e.g. water or ethanol



Describe how to obtain a sample of pure water from ink



Describe how to obtain a sample of pure water from ink

Simple distillation: Gently heat the ink in a round bottomed flask using a Bunsen burner. The water from the ink evaporates then cools in the condenser. The pure water is collected in a beaker.



How do you set up a condenser for simple distillation?



How do you set up a condenser for simple distillation?

Condenser should be horizontal with water in at the bottom and water out at the top.



When using simple distillation to collect pure water, what temperature will be on the thermometer?



When using simple distillation to collect pure water, what temperature will be on the thermometer?

100°C



List precautions to take when using a Bunsen burner



List precautions to take when using a Bunsen burner

- Don't leave unattended
- Turn off gas or leave on orange safety flame when not in use
- Tie back long hair
- Work in a clear space
- Move any flammable substances away



List precautions to take when handling harmful solvents



List precautions to take when handling harmful solvents

- Wear gloves and safety goggles
- Use in a well ventilated lab or use a fume cupboard
- Clean up any spillages

