AQA Chemistry A-Level

RP12 - Thin-layer chromatography (TLC)

Flashcards

What are the uses of thin layer or paper chromatography?

What are the uses of thin layer or paper chromatography?

To separate a mixture into its constituent components for analysis. This allows identification by the calculation and comparison of R_f values.

How do you calculate an R_f value?

How do you calculate an Rf value?

R_f value = Distance travelled by component ÷ Distance travelled by solvent

How do you carry out TLC?

How do you carry out TLC?

1. Add solvent to a jar. Seal to create a saturated environment.
2. Draw a pencil line on TLC plate. Spot samples along this line using a capillary tube.
3. Add TLC plate to jar. Make sure solvent is below pencil line.
4. The solvent rises up the TLC plate, bringing components of the samples with it.
5. Draw a pencil line where the solvent finishes (don't allow it to travel to the top of the plate). Allow to dry.

Why must any lines drawn on the TLC plate be in pencil?

Why must any lines drawn on the TLC plate be in pencil?

Because if drawn in ink, this will dissolve in the solvent and run up the plate with the other components, contaminating the plate.

Why should the solvent be below the pencil line?

Why should the solvent be below the pencil line?

If above the pencil line, the solvent will dissolve all samples and they will not run up the plate.

What happens if your sample is too concentrated?

What happens if your sample is too concentrated?

If your sample is too concentrated then the spots overlap.

What happens if you use less solvent and have a high baseline?

What happens if you use less solvent and have a high baseline?

If you use less solvent and have a high baseline you will get large spots.

How do you view the spots on a TLC plate?

How do you view the spots on a TLC plate?

- Some spots may be visible, others may only be visible under a UV lamp/light.
- Sometimes the plate is sprayed with a chemical/locating agent to show ‘invisible’ spots.

What does a diagram of thin-layer chromatography look like?

What does a diagram of thin-layer chromatography look like?