

Frequently Asked Questions – FAQs

Q1. What are the advantages of Paper Chromatography?

Paper Chromatography Has Many Benefits

- ✓ Simple and rapid
- ✓ Paper chromatography necessitates a minimal amount of quantitative material.
- ✓ Paper chromatography is less expensive than other chromatography methods.
- ✓ The paper chromatography method can identify both unknown inorganic and organic compounds.
- ✓ Paper chromatography takes up little space when compared to other analytical methods or equipment.
- ✓ Outstanding resolving power

Q2. Why water is not used in paper chromatography?

It is preferable to use a less polar solvent, such as ethanol, so that the non-polar compounds will travel up the paper while the polar compounds will stick to the paper, separating them.

Q3. What are the limitations of Paper Chromatography?

Limitations of Paper Chromatography are as follows-

- ✓ Paper chromatography cannot handle large amounts of samples.
- ✓ Paper chromatography is ineffective in quantitative analysis.
- ✓ Paper chromatography cannot separate complex mixtures.
- ✓ Less Accurate than HPLC or HPTLC

Q4. What is the importance of paper chromatography?

Paper chromatography has traditionally been used to analyse food colours in ice creams, sweets, drinks and beverages, jams and jellies. Only edible colours are permitted for use to ensure that no non-permitted colouring agents are added to the foods. This is where quantification and identification come into play.

Q5. Is paper chromatography partition or adsorption?

A type of partition chromatography is paper chromatography.

Short Notes

1. Principle of Paper Chromatography:

Paper Chromatography is based on the principle of partitioning, where a mixture of substances is separated due to differences in their solubility in a particular solvent. The components of the mixture move at different rates across a paper medium, resulting in separation.

2. Write a short note on the Paper Chromatography Procedure:

A sample is applied as a spot on a sheet of chromatography paper. The paper is then placed in a solvent (the mobile phase), which travels up the paper through capillary action. Different substances in the sample interact differently with the solvent and the paper (stationary phase), causing them to move at varying speeds and separate.

3. Types of Paper Chromatography:

There are two main types:

Ascending Paper Chromatography: The solvent moves upward on the paper due to capillary action.

Descending Paper Chromatography: The solvent moves downward due to gravity.

4. Applications of Paper Chromatography:

Paper Chromatography is widely used in chemistry and biochemistry to separate and identify substances in mixtures, such as food colorants, inks, and plant pigments. It is also used for analyzing complex biological samples.

One-Line Questions with Answers:

1. What is paper chromatography?

A technique used to separate and identify components in a mixture based on their solubility and interaction with a stationary phase.

2. What is the principle behind paper chromatography?

It is based on the partitioning of substances between a mobile phase (solvent) and a stationary phase (paper).

3. What does the stationary phase refer to in paper chromatography?

The paper, which acts as a medium for the separation of components.

4. What is the mobile phase in paper chromatography?

The solvent used to move the substances through the paper.

5. How does the solvent move in ascending paper chromatography?

The solvent moves upward due to capillary action.

6. What is the role of capillary action in paper chromatography?

Capillary action helps the solvent to move up the paper, carrying the components with it.

7. Why do different substances travel at different rates in paper chromatography?

Because they have different affinities for the solvent and the paper.

8. What is the use of a solvent front in paper chromatography?

It marks the furthest point the solvent has traveled on the paper.

9. What does the R_f value represent in paper chromatography?

The ratio of the distance traveled by a component to the distance traveled by the solvent.

10. What is the common application of paper chromatography in biochemistry?

To separate and identify pigments, amino acids, and other organic compounds in biological samples.