

Subject-Chemistry

Activity-Separation of dyes in black ink using Paper Chromatography

Class-IX

Chapter- Is Matter Around us Pure?

Duration: 40 Mins

Nature of the Activity: Group

Learning Outcome:

Students will be able to explore that black ink is a mixture of several components through the process of Chromatography

What we have to do?

To separate the dyes present in black ink using Chromatography

What we require?

Thin strip of filter paper, pencil, scale, fountain pen, tooth pick

What do we need to know?

We know that most of the natural substances are not chemically pure. Special techniques are used to separate the various components of a mixture. Chromatography is used for separation of components of black ink. In this process Filter paper behave as the stationary phase and water behaves as the mobile phase. The separation of components depends upon the solubility of components present in the black ink in the solvent-water.

How will you proceed?

➤ Teacher's Activity

Teacher will brief the students about the activity and make necessary arrangements of the apparatus in the laboratory

➤ Student's Activity

1. Take a thin strip of filter paper
2. Draw a line on it using a pencil approximately 3cm above the lower edge.
3. Put a small drop of ink at the centre of the line.Let it dry
4. Lower the filter paper into the beaker containing water so that the drop of ink on the paper is just above the water level.

5. Leave it undisturbed till water rises upto $\frac{2}{3}$ of the length of the filter paper.
6. Watch carefully as the water rises up on the filter paper.
7. Record your observations.

What have you observed?

Original colour of the spot	
Number of colours obtained from the spot at the end of the process	
Distance travelled by component 'a' from the reference line (in cm)	
Distance travelled by component 'b' from the reference line (in cm)	
Distance travelled by solvent from the reference line(in cm)	

What have you learnt?

Black ink is a _____. It consists of _____ components.

What would you be interested to know about?

1. Name any 3 mixtures which can be separated by the process of Paper Chromatography?
2. What are the various types of Chromatography?
3. What do you understand by Retardation factor(R_f) ? Compute the Retardation Factor for the above process.