



The National
Orthodox School
Shmaisani

The National Orthodox School/ Shmessani

Name: **Zeina Khraim**

Lab report (2) / Chromatography

Date: 1/12/2022

Grade**7 C**

1) Writing a fully focused research question

What is the effect of changing the type of solvent on the chromatography method measured by the distance travelled by the ink measured in cm?

2) Hypothesis:

In Paper chromatography the components of the solution separate and become visible as strips of color on the chromatography paper when they dissolve in the right solvent.

3) Scientific explanation for hypothesis *(This is the explanation to the previous hypothesis.*

Why do you think that your hypothesis is correct? Explain it in detail with reasons and causes.

Chromatography is a method that is used for separation of mixtures of chemical substances.

Chromatography is using a flow of solvent to cause the components of a mixture to migrate differently from a narrow starting point in a specific medium, in the case of this experiment, filter papers.

Permanent markers are water-insoluble (that's what makes them permanent), which is why we will try other solvent like and vinegar to help us separate colors in permanent markers.

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4) Manipulating the variables:

1 marks

Controlled Variable	How will you keep this controlled?	How could it affect your results if not controlled?
<ul style="list-style-type: none">• Volume of water• Distance of the color line from the pencil line	<ul style="list-style-type: none">• Measuring cylinder : 15ml of solvent for each• Distance: 2 cm from the pencil line	<ul style="list-style-type: none">• Too much solvent can affect the absorption of the solvent and how fast and how far the color will break down.• If the line was too close or too far from the color it will affect the break down.

5) Materials and Method:

1 mark

paper towel strips/ Coffee filters

glass cups

Pencil

Ruler

Permanent markers; green, blue and black

Water

Vinegar

- Method: What are the steps of the investigation?

1. Cut paper towel/ coffee filters in strips.
2. Draw a pencil line across the width of each paper strip, about one centimeter from the bottom end.
3. Take the marker and a paper strip and draw a short line (about one centimeter) on the middle section of the pencil line. Your marker line should not touch the sides of your strip.
4. Repeat step 3 for all the markers.

5. Use a pencil to write the color of the marker you just used on the top end of the strip.
Note: **Do not use the colored marker or pen to write on the strips, as the color or ink will run during the test.**
6. Fill cups with a bit of the solvent you are testing out: **START WITH WATER**. add water to the glass until the level just reaches the bottom end of the paper strip.
7. Hang the paper strip over the edge of the glass so that the paper towel/ coffee filter touches the liquid, but the line is above the liquid.
8. Watch as the water rises up the strips.
9. Record your observation. (What happens to the colored lines on the strips? Does the color run up as well? Do you see any color separation?)
10. Repeat steps 1-9 using **another solvent vinegar**

Safety precautions

Don't use rubbing alcohol/ nail polish remover near flames.
Wash hands after using any chemical.

2) Results

3 marks

- Data

Solvent	Color 1	Colors appeared & distance travelled by each color/ cm	Color 2	Colors appeared & distance travelled by each color/cm	Color 3	Colors appeared & distance travelled by each color/cm
Water	black	Colors appeared in 1min and traveled 6cm	green	Immediately and traveled 4.5cm	blue	Immediately almost 3cm

vinegar	black	Immediately 7cm	green	Immediately 5cm	blue	Immediately 4.5cm
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Add a photo to show the results

