Maggie Magnificent

Date 9/27/11 Period 2

Separating Mixtures part 4-Chromatography

Nice work!

Purpose (Learning Target) Students will use the physical property of solubility to seperate the dyes in the ink pens.

Hypothesis: How could you use chromatography to separate a mixture?

If we use the method of chromatography and the physical property of solibility on the ink of a pen, then the alcohol used will perform the action of capillary, desolving the more solidable dyes, which will therefore seperate them.

Materials:

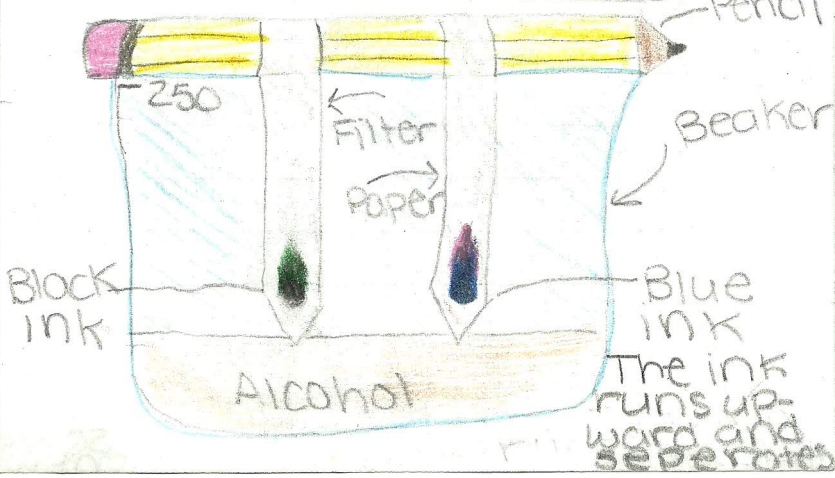
1. Two 2x12.5cm Filter paper strips.
2. Two ink pens (1 black, 1 color of choice)
3. 250 mL Beaker
4. Two peices of tape
5. 25mL of Isopropyl alcohol
6. One pencil

Procedure: Develop a procedure to test your hypothesis.

1. Get the two strips of filter paper and color one dot at the end of each with your two ink pens.
2. Tape the two strips of paper to the pencil 2cm apart. Fill the bottom of your 250mL beaker with isopropyl alcohol.
3. Set pencil with filter paper on beaker so paper hang inside, slightly touching the alcohol. Measure the distance upward the ink reaches on the filter paper with a limit of time. Record the data.

Data/Results/Observations: Data Table needed for analysis question 3

Substance (ink)	Time	Distance (mm)
Black	0 min.	0 mm
Blue	0 min.	0 mm
Black	2 min.	10 mm
Blue	2 min.	11 mm
Black	4 min.	13 mm
Blue	4 min.	15 mm
Black	6 min.	14 mm
Blue	6 min	16 mm
Black	8 min	15 mm
Blue	8 min.	17 mm
Black	10 min	15 mm
Blue	10 min	19 mm



Analysis (Levels 1-4 are required) 1 /1

Level 1: Define solubility. Solubility is defined as, the ability of a substance to dissolve.

Level 2: Explain how you can use chromatography to separate mixtures. 1 /1

The process of chromatography with the physical property solubility to seperate a mixture, because each of the elements in the mixture have different solubilities. For exsample, if the pink dye in blue is more soluble than the other dyes, it will dissolve easier, and be carried further up, seperating the mixture.

Level 3: Using data you collected support why using chromatography is a good way to separate a mixture. Refer to your data table/drawings etc. 1 /1

This is a usefull way to seperate a mixture because if we look back on our data, as the time arew, the ink on the filter strips traved up, untill at 18 min the black ink was 15mm up and blue was 19 mm up. However as the colors ran upward the colors changed. Blue turned to pink and black to green.

Level 4 Compare in detail the results of this lab to an outside occurrence. 1 /1

Chromatography is used in police investigations when it involves blackmail. The pen suspected of creating the mail is put through the chromatography procedure. This procedure is also done and the black mail. If the two new streaks of color that show afterward are the same, the investigators know that was the pen that created the blackmail.

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Conclusion (Required) 4 /4

1. Conclusions must be written in paragraph form. Do not number or bullet a conclusion.
2. Restate the purpose / question/ problem.
3. Tell whether you accept or reject the hypothesis based on the results from this experiment.
4. What did you learn in this lab?
5. Now I wonder? (What are possible further experiments or questions that you could ask based on this experiment?)

The purpose of this experiment was to use the physical property of solibility to seperate the dyes in ink pens. I accept my hypothesis on the thought that when we performed our exspirments procedure, the alcohol did display the act of capillary, climbing up the filter paper, disolving the more soluble dyes, and seperated the dyes in the ink mixture. I discovered that ink contains several dyes and that these dyes seperate with the simple elements of alcohol and filter paper. I also learned how elements of a mixture can dissolve and seperate with ease. Now I wonder if this exspirment will have the same results if we used