

DATA SHEET
CHROMATOGRAPHY

I. Paper Chromatography

List each color present in each sample and their corresponding R_f values in the following table:

Distance solvent front moved: _____

Sample	Colors of components after development	Distance component moved	R_f Values
Ink 1:	Color: Color: Color:		
Ink 2:	Color: Color: Color:		
Ink 3:	Color: Color: Color:		
Unknown:	Color: Color: Color:		

Which pen did the instructor use to prepare your unknown? _____

* Attach chromatography strip here *

(Circle one)

1:2 IPA

2:1 IPA

II. Reverse-Phase Chromatography

Write down the color of each dye as they elute from the column.

1	2	3

REVIEW QUESTIONS CHROMATOGRAPHY

I. Paper Chromatography

1. How is the R_f value of a component related to its polarity?

2. a) What component of your ink #1 sample had the largest R_f value?

b) Is this component the most polar or the least polar substance that you observed for ink #1? Explain.

3. Why is it important to maintain the solvent level in the chamber below the point of application of the sample?

4. What is the stationary phase (substrate)?

5. What is the mobile phase (eluting agent)?

6. In paper chromatography, how does the solvent move up the paper?

7. What physical property allows components of a mixture to be separated in paper chromatography?

8. How is the R_f value calculated?

9. If the solvent front moves 8 cm and component A moves 6 cm and component B moves 4 cm, what are the R_f values for each component?
10. In theory, what are the largest and smallest possible R_f values?

Largest _____ Smallest _____

11. a. From looking at your chromatogram, would it be possible for two different components of a mixture to have the same R_f value (within a value of 0.1)? Explain.
- b. What is the consequence of your answer in Part (a) in terms of using paper chromatography to positively identify chemical compounds?
12. Compare the R_f factors between you and your lab bench partners solvent systems.

II. Reverse-Phase Chromatography

13. How is reverse-phase different from paper chromatography?
14. Which is more polar? (circle one) water isopropyl alcohol
15. In the reverse-phase chromatography experiment, does the most or least polar component elute first? Explain.
16. If you only used water as the mobile phase and didn't use any isopropyl alcohol, what would have happened?

17.
 - a) What is the most polar food coloring in the mixture?
 - b) What is the least polar food coloring in the mixture?