

Assignment #3

Pre-lab outlines for Experiments 4 & 5	0.1
Data and observations for Expts. 4 & 5 (notebook pages)	0.2
Results from Expt. 4	
R_f 's and identification of unknowns.....	0.15
Results from Expt. 5	
Melting points, recoveries of solids and R_f 's	0.15
Discussion (1-2 pages).....	0.4

Discuss the objectives, observations, principles and error sources for Experiments 4 and 5. Include the following in your discussion:

- Discuss the two food dye chromatograms that you obtained as well as the third chromatogram that you observed. Which solvent system yielded the best results?
- Explain how your observations of the paper chromatogram led to the identification of the components of your unknown amino acid mixture.
- Explain how your observations of the silica gel chromatogram led to the identification of the active ingredient in the medicine tablet.
- Using your results from the amino acid and drug chromatograms in Experiment 4, discuss the relationship between the polarity of molecules and the R_f values.
- Discuss your percent recoveries of ferrocene and acetylferrocene, bearing in mind that the original mixture was a 1:1 combination of the two compounds by weight. Discuss the purity of the two substances.
- Discuss the TLC results obtained in Experiment 5. What conclusion can you draw regarding the effectiveness of the separation?
- Using your results from Experiment 5, discuss the relationship between the polarity of molecules and their order of elution.
- Comment on the advantages and disadvantages of using sublimation to purify a solid compound as compared to recrystallization.

The discussion section of the report must be typed, and the length of the discussion section **must not exceed two pages**. Use double-spacing, a one inch margin on the top, bottom and sides of the page, and a standard font (Times, Palatino, Arial, Helvetica) with a size that is not smaller than 12 point. If your discussion section exceeds two pages in length, your TA will not read past the second page when grading the report.