

Experiment 18

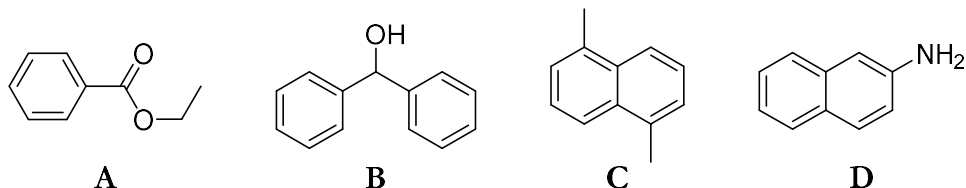
Identification of Unknowns: Isolation of an Alcohol and a Ketone

Study Questions

- 1) List the following solvents from most polar to least polar: hexanes, methanol, dichloromethane, acetic acid, ethyl acetate.

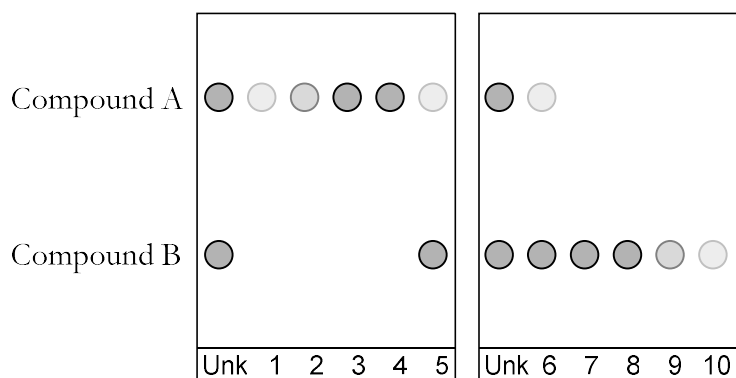
Answer: acetic acid, methanol, ethyl acetate, dichloromethane, hexanes

- 2) Order the following compounds from most polar to least polar. Which would you predict would have the highest R_f value on a TLC plate?



Answer: B, D, A, C. Since C is least polar, it should have the highest R_f value.

- 3) A mixture of two compounds is processed by flash chromatography; fractions 1–10 are collected and spotted on TLC plates. Consider the developed TLC plates below:



- a. Which fractions would you combine to yield pure compound A? **Answer:** 1-4.
b. Which fractions would you combine to yield pure compound B? **Answer:** 7-10.
- 4) A student combines her fractions properly according to her TLC analysis. However, the melting point of the combined sample is 131-145° C. What should the student do? **Answer:** The large melting point range indicates that the compound is impure. The student needs to purify the compound by either another column chromatography procedure or by recrystallization.